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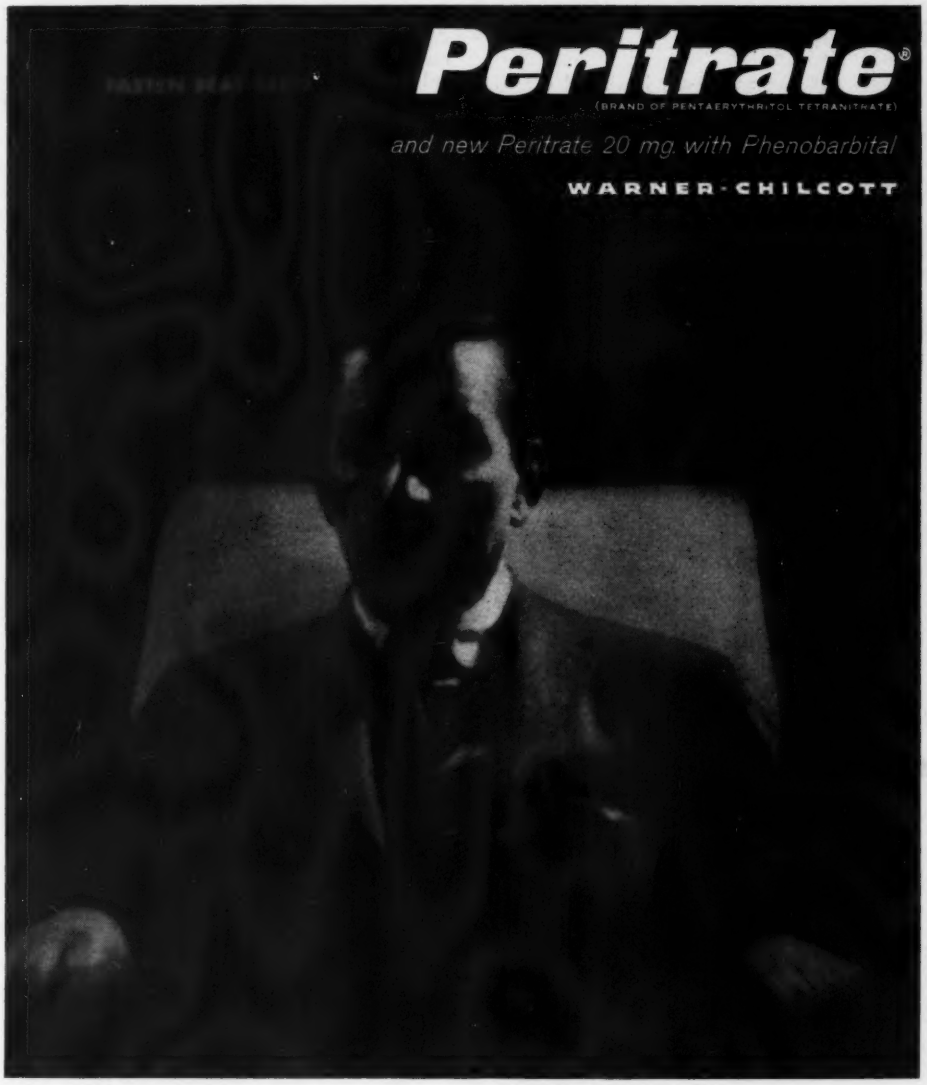

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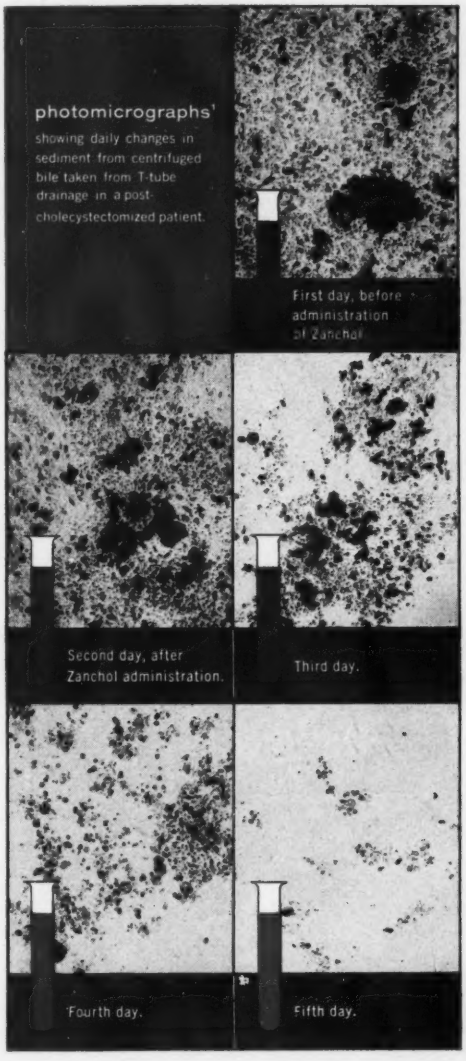
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1. McGowan, J. M.: Clinical Significance of Changes in Common Duct Bile Resulting from a New Synthetic Choleretic, Surg., Gynec. & Obst. *103*:163 (Aug.) 1956.

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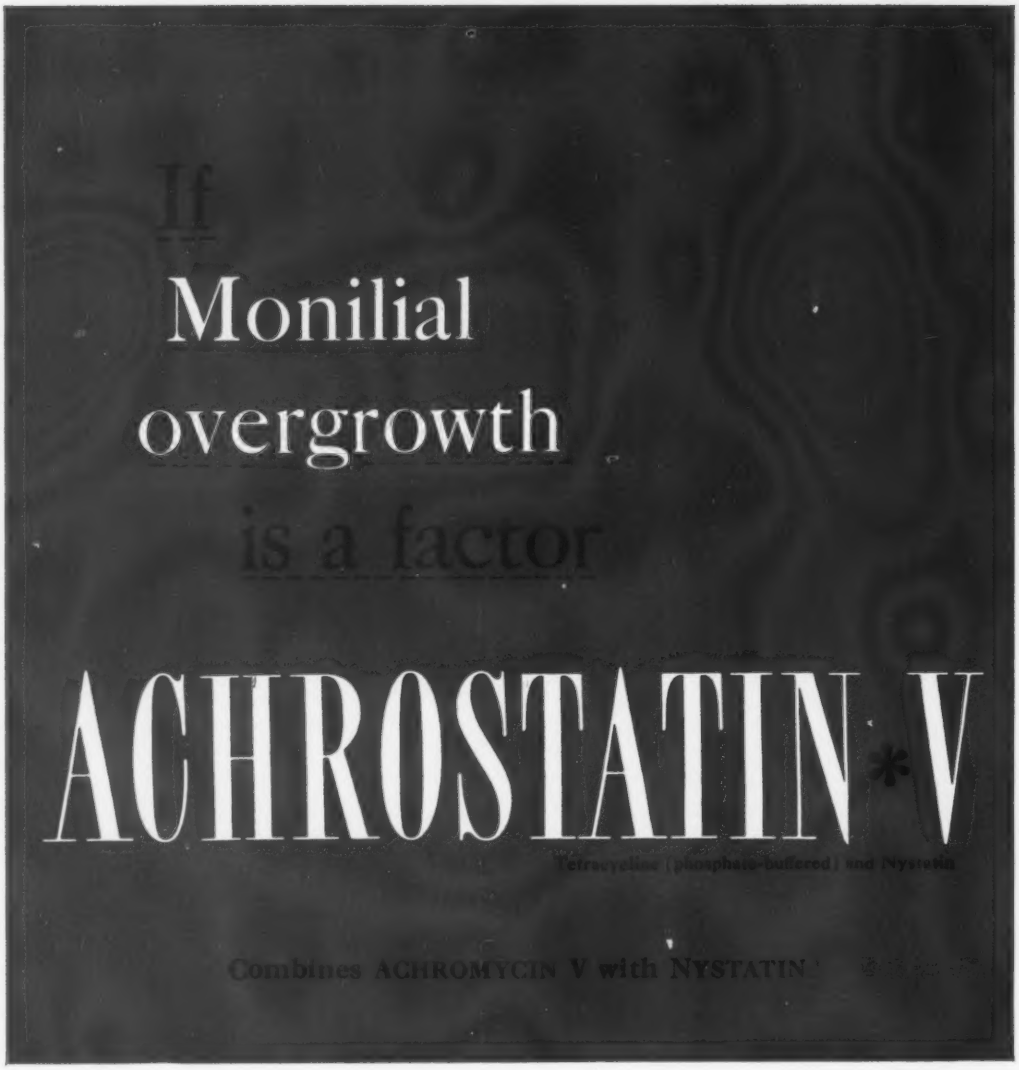

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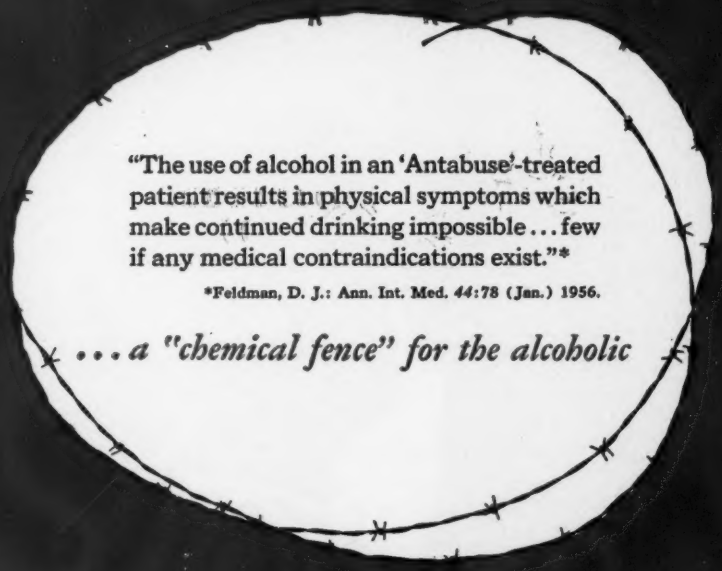
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References: (1) Jackson, G. G., & Grieble, H. G.: *Ann. New York Acad. Sc.* **69**:493, 1957. (2) Jones, W. F., & Finland, M.: *Ibid.* **69**:473, 1957. (3) Lepper, M. H.; Simon, A. J., & Marienfeld, C. J.: *Ibid.* **69**:485, 1957. (4) Ross, S.; Ahrens, W. E., & Zaremba, E. A.: *Ibid.* **69**:501, 1957. (5) Walker, W. F., & Hamburger, M.: *Ibid.* **69**:509, 1957.

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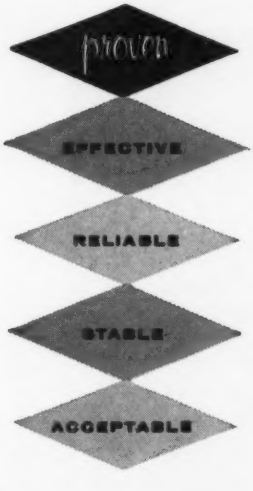

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1. Greenblatt, R. B.: Obst. & Gynec. 2:530, 1953.
2. Dill, L. V.: M. Ann. District of Columbia 23:667, 1954.

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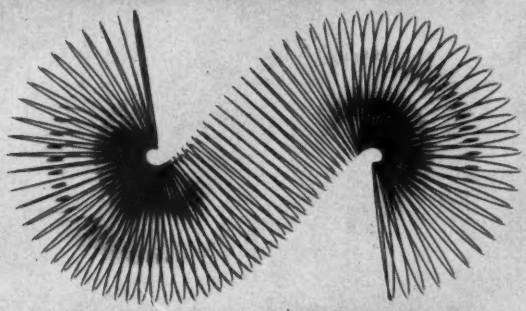
Phenobarbital (¼ gr.) 16.2 mg.
Hyoscyamine Sulfate 0.032 mg.
Also available —
PHENAPHEN with CODEINE PHOSPHATE ¼ GR.
Phenaphen No. 2
PHENAPHEN with CODEINE PHOSPHATE ½ GR.
Phenaphen No. 3
PHENAPHEN with CODEINE PHOSPHATE 1 GR.
Phenaphen No. 4
Robins

A. H. ROBINS CO., Inc., RICHMOND 20, VA.

Ethical Pharmaceuticals of Merit since 1878

quick stop to g.i. spasm...



BENTYL

2 caps t.i.d. (dicyclomine hydrochloride)

no atropine or belladonna-like side effects...[1,2] **safe—even in the presence of glaucoma**[3-5]

References:

1. McHardy, G. and Browne, D. C.: South. M. J. 45:1139, 1952. 2. Hock, C. W.: J.M.A. Ga. 40:22, 1951. 3. Hufford, A. R.: Am. J. Dig. Dis. 19:257, 1952. 4. Brown, Jr., D. W. and Guilbert, G. D.: Am. J. Ophthal. 36:1735, 1953. 5. Cholst, M., Goodstein, S., Berens, C. and Cinotti, A.: Scientific Exhibit, A.M.A., June, 1957.

Capsules, Syrup (plain and with phenobarbital), Tablets with Phenobarbital, and Injection

TRADEMARK: 'BENTYL'

Merrell
SINCE 1828

THE WM. S. MERRELL COMPANY
New York • CINCINNATI • St. Thomas, Ontario
Another Exclusive Product of Original Merrell Research

stop

Consistent Gains in Functional Capacity Can Be Achieved with Conservative Therapy

The unemployable arthritic once again may undertake full employment and normal recreation. Patients once confined to the home or wheel chair often find it possible to engage in light work. And even bedridden patients can walk with comfort again. These are the benefits of conservative therapy as demonstrated in long-term studies.[1,2,3] In fact, in these four-year comparative studies of salicylate and cortisone, the corticoid showed no superiority over conservative therapy.

Superior Conservative Therapy Provided by Buffered Pabirin

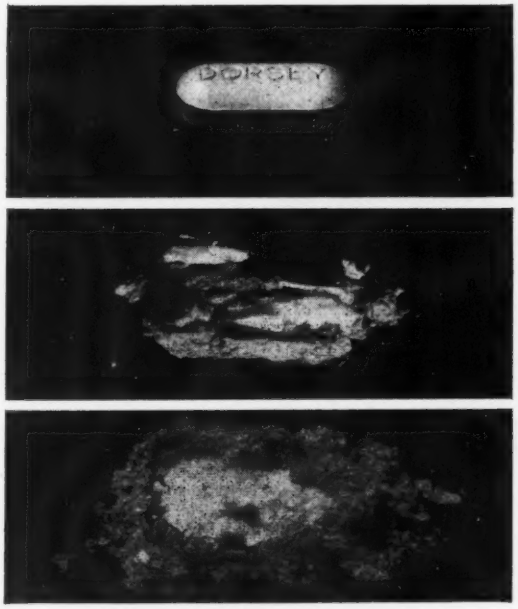
Buffered Pabirin epitomizes modern, conservative therapy without the serious complications of corticoid therapy. Adrenal atrophy, peptic ulcers, moon-face, hypertension or psychotic reactions, a constant risk whenever corticoids are used,[4-7] will not occur with Buffered Pabirin. Month after month, Buffered Pabirin can be administered with a minimum of problems to patient and physician, and without the side effects common to the use of salicylates alone.

Buffered Pabirin combines new form and formulation for faster pain relief, improved gastric tolerance

Each tablet of Buffered Pabirin consists of an outer layer containing a buffer (aluminum hydroxide), para-aminobenzoic acid and ascorbic acid; an inner core of aspirin. The outer layer quickly releases aluminum hydroxide which affords superior buffering action and protects against gastric irritation. The core of Buffered Pabirin then disintegrates rapidly, permitting fast absorption of acetylsalicylic acid. PABA potentiates the acetylsalicylic acid and creates high salicylate blood levels. Ascorbic acid counteracts vitamin C depletion.

The new form and formulation of Buffered Pabirin provides high and sustained salicylate blood levels. It may be administered over long periods of time without the nausea, dyspepsia or other gastrointestinal symptoms so frequently experienced with salicylates alone.

in osteoarthritis, gouty arthritis, rheumatoid arthritis, bursitis, fibrositis, or tendinitis



Photographs show 2-stage Tandem Release disintegration

Buffered Pabirin® *Tablets*

Each tablet contains:

Acetylsalicylic acid (5 gr.).....300 mg.
Para-aminobenzoic acid (5 gr.).....300 mg.
Ascorbic acid..... 50 mg.
Dried aluminum hydroxide gel.....100 mg.

All Buffered Pabirin is sodium and potassium free

Dosage: Two or three tablets 3—4 times daily.

References: 1. Report of Joint Committee, Medical Research Council & Nuffield Foundation, Treatment of Rheumatoid Arthritis, British Medical Journal (May 29) 1223-1227, 1954. 2. ibid. (April 13) 847-850, 1957. 3. Hart, D.; Bagnall, A. W.; Bunim, J. J., and Polley, F. H.: Ninth International Congress on Rheumatic Diseases, Toronto, Ont. (June 25) 1957. 4. Lewis, L., *et al.*: Ann. Int. Med. 39:116, 1953. 5. Demartini, F., *et al.*: J.A.M.A. *158*:1506, 1955. 6. Segaloff, A.: Ann. Allergy *12*:565, 1954. 7. Kern, R. A.: Am. J. M. Sc. 233:430, 1957.

SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska

Strictly *Prescription-Controlled*

Medihaler-Phen

MEASURED-DOSE NASAL AEROSOL NEBULIZATION

Effective, Multiple Approach to Nasopharyngeal Affections

SINUSITIS
NASOPHARYNGITIS
RHINITIS
due to common cold, infections, allergies

Controlled Dosage

Medihaler-Phen is designed to give the physician closer management supervision over the patient. It governs self-medication—makes squeeze bottles and droppers obsolete. An accurately measured nebular cloud is gently ejected—not an irritating, powerful jet—no drops of liquid—prevents haphazard dosage.

More than Merely Vasoconstriction

In addition to its efficient but nonirritating vasoconstrictive action Medihaler-Phen counteracts secondary invading organisms and maintains total area decongestion with tissue-compatible effectiveness. Safe for children too.

To Prevent Post-Coryzal Complications

Medihaler-Phen affords immediate relief of congestion during the acute stages of coryza, keeps open the ostia of the paranasal sinuses...aids in the prevention of complications which may follow blockage by thick secretions.

Four Important Actions

An effective, safe, 4-pronged attack (vasoconstrictive, decongestive, anti-inflammatory, antibacterial) is the result of the blended formula. Each cc. of Medihaler-Phen contains phenylephrine HCl 3.6 mg., phenylpropanolamine HCl 7.0 mg., neomycin sulfate 1.5 mg. (equivalent to 1.0 mg. of neomycin base), and hydrocortisone 0.6 mg., suspended in an inert, nontoxic aerosol vehicle.

Riker
LOS ANGELES

The Medihaler Principle

Automatically measured-dose aerosol medications. In spillproof, leakproof, shatterproof, stainless steel, vest-pocket size dispensers with sterilizable plastic adapters. Also available in Medihaler-Epi® (epinephrine bitartrate) and Medihaler-Iso® (isoproterenol sulfate) for the relief of asthma and other allergies.

when your overweight patient is also

tense, anxious and irritable . . .

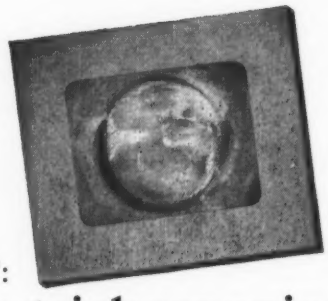
Dexamyl* Spansule* sustained release capsules will:

- provide daylong control of appetite with only one oral dose in the morning
- "normalize" extremes of tension, anxiety and irritability, producing a "psychic climate" that is conducive to a successful weight reduction program

'Dexamyl' Spansule capsules—a combination of Dexedrine* (dextro-amphetamine sulfate, S.K.F.) and amobarbital—are available in two dosage strengths: No. 2 (standard strength) and No. 1. Also: tablets and elixir.

Smith Kline & French Laboratories, Philadelphia

*T.M. Reg. U.S. Pat. Off.



THE PATIENT'S COMPLAINT:

stubborn trichomoniasis

THE PRESCRIPTION:

eradication by

explosion

MORE and more physicians have found that vaginal trichomoniasis resistant to many types of medication is quickly and easily eradicated by VAGISEC liquid and jelly.[1,2] This is good news for patients who have long suffered from annoying leukorrhea, pruritus and burning. All of Decker's[1] patients obtained "immediate relief of acute symptoms" with the very first office treatment, and 97% were "cured."

As seen in the majority of Decker's patients, only three to four weeks of treatment were necessary. Negative results usually follow three successive menstrual cycles and constitute a "cure."

The reason for this success is the powerful, penetrating action of VAGISEC liquid which reaches every crevice of the vaginal rugae and dissolves albuminous secretions to reach the hidden trichomonads. Within *15 seconds* of contact, they are exploded. This total destruction is caused by the wetting, detergent and chelating agents in VAGISEC liquid which weaken the cell membranes, remove waxes and lipids, and denature the proteins. The Davis technique, emphasizing continuous, 'round-the-clock therapy with both VAGISEC liquid and jelly, eradicates trichomonads and gives them no possible chance to reappear.

VAGISEC®

liquid and jelly

References: 1. Decker, A.: New York J. Med. *57*:2237 (July 1) 1957. 2. Davis, C. H.: West. J. Surg. *63*:53 (Feb.) 1955.

JULIUS SCHMID, INC.

423 West 55th Street, New York 19, N. Y.

VAGISEC is a registered trade-mark of Julius Schmid, Inc.

for pain... as effective as codeine without codeine's liabilities

Zactirin*

NON-NARCOTIC

Potently Analgesic

Effectively Anti-inflammatory

2 ZACTIRIN tablets are equivalent in analgesic potency to ½ grain of codeine plus 10 grains of acetylsalicylic acid.

Supplied: Distinctive, 2-layer yellow-and-green tablets, bottles of 48. Each tablet contains 75 mg. of ethoheptazine citrate and 325 mg. (5 grains) of acetylsalicylic acid.

Wyeth®
Philadelphia 1, Pa.

New...from Pfizer Research

84

compounds tested

1

compound unexcelled

Progress has been made in antibiotic therapy through the use of absorption-enhancing agents, resulting in higher, more effective antibiotic blood levels.

For the past two years, in a continuing search for more effective agents for enhancing oral antibiotic blood levels, our Research Laboratories screened eighty-four adjuvants, including sorbitol, citric acid, sodium hexametaphosphate, and other organic acids and chelating agents as well as phosphate complex and other analogs. After months of intensive comparative testing, glucosamine proved to be the absorption-enhancing agent of choice. Here's why:

1 Crossover tests show that average blood levels achieved with glucosamine were markedly higher than those of other enhancing agents screened. In some cases this effect was more than double.

2 Of great importance to the practicing physician is the consistency of the blood level enhancement achieved with glucosamine. Extensive tests show that the enhancing effect with glucosamine occurs in a greater percentage of cases than with any other agent screened.

3 Glucosamine is a nontoxic physiologic metabolite occurring naturally and widely in human secretions, tissues and organs. It is nonirritating to the stomach, does not increase gastric secretion, is sodium free and releases only four calories of energy per gram. Also, there is evidence that glucosamine may favorably influence the bacterial flora of the intestinal tract.

For these reasons glucosamine provides you with an important new adjuvant for better enhancement of antibiotic blood levels. Tetracycline, potentiated physiologically with glucosamine, is now available to you as COSA-TETRACYN.

Capsules 250 mg. and 125 mg.

COSA-TETRACYN*

GLUCOSAMINE-POTENTIATED TETRACYCLINE

The most widely used broad-spectrum antibiotic now potentiated with glucosamine, the enhancing agent of choice

*Trademark

Pfizer

PFIZER LABORATORIES
Division, Chas. Pfizer & Co., Inc.
Brooklyn 6, N. Y.

an advanced method of theophylline therapy

CLYSMATHANE
(FLEET)

Disposable Rectal Unit

simple... safe... effective...

For the alleviation of symptoms in bronchial asthma and the acute episodes of heart failure, CLYSMATHANE (Fleet) supplies prompt therapeutically adequate blood levels of theophylline.[1]

Even after repeated dosage CLYSMATHANE (Fleet) minimizes the side effects often associated with oral or parenteral theophylline administration. The plastic squeeze bottle (with attached, prelubricated, non-traumatic rectal tube) is designed for self-administration.

Dosage: One CLYSMATHANE (Fleet) Unit as a retention enema before retiring or as directed. Available on prescription at professional pharmacies.

Composition: Theophylline monoethanolamine (Theamin, Fleet) 0.625 Gm. aqua 37.0 ml. in rectal dispenser. Units packed in individual cartons, manufacturer's label readily removable.

REFERENCE: (1) Ridolfo, A. S. & Kohlstaedt, K. G., "A simplified method for the rectal instillation of theophylline"—to be published

CLYSMATHANE
(FLEET)

Disposable Rectal Unit

since 1869 Fleet

Professional Samples and literature on request

C. B. FLEET CO., INC.

Lynchburg, Virginia

1. *Sphincter of Boyden*
2. *Sphincter of Oddi in Spasm*

BILIARY STASIS
constipation — nausea — dyspepsia
flatulence and eructation

The primary function of the Cholan preparations is to induce hydrocholeretic action. The active ingredient is the pure oxidized bile acid, dehydrocholic acid, Maltbie. The Cholans increase the volume of low viscosity bile flow to flush out the biliary tract. In addition, there is a suitable Cholan dosage form to provide symptomatic and physiologic relief of biliary stasis, spasm or emotional factors that cause or complicate digestive disturbance, hepato-biliary dysfunction, constipation of biliary origin, cholecystitis, cholangitis, or postoperative treatment.

Cholan DH® — hydrocholeretic action increases the flow and heightens the pressure of low viscosity bile for normal flushing of the biliary tract. In fact, Cholan DH will increase the volume of bile by 33% to 100%.

Cholan V (hydrocholeretic-spasmolytic) — the volume and pressure of thin bile flow in the biliary tract is increased, and the V mg. of homatropine methylbromide relax the gallbladder and biliary sphincters in severe and chronic spasm.

Cholan HMB — a combination for the increased flow of thin bile, smooth muscle relaxation for the gallbladder and biliary sphincters, and mild sedation for patients with hepato-biliary dysfunction further complicated by emotional factors.

NORMAL BILIARY FUNCTION

Sphincter Muscles in Normal Relaxation

Cholan

hydrocholeretic – spasmolytic

With **Cholan** *therapy, the distressing symptoms of constipation, nausea, dyspepsia, flatulence and eructation disappear. Normal digestive function is quickly restored.*

Cholan DH®– dehydrocholic acid, Maltbie, 250 mg., a chemically pure oxidized bile acid. Dosage: 1 or 2 tablets t.i.d. after meals. Cholan V– dehydrocholic acid, Maltbie, 250 mg., and 5 mg. homatropine methylbromide. Dosage: 1 or 2 tablets t.i.d. after meals. Cholan HMB – dehydrocholic acid, Maltbie, 250 mg., 2.5 mg. homatropine methylbromide, and 8 mg. phenobarbital. Dosage: 1 or 2 tablets t.i.d. after meals.

Supplied: **Bottles of 100, 500 and 1,000 tablets.**

For a trial supply write to Professional Service Department

Maltbie

Maltbie Laboratories Division • Wallace & Tiernan Inc. • Belleville 9, N. J.

PCN-81

new **LINODOXINE*** emulsion capsules

LINOLEIC ACID (ESSENTIAL UNSATURATED FATTY ACID) AND PYRIDOXINE HCl

Supplies *linoleic acid*—essential unsaturated fatty acid—to help restore and maintain the proper ratio between saturated and unsaturated fat in the diet; and *pyridoxine*, essential for the utilization of linoleic acid in the body.

Significant reduction of elevated blood cholesterol has been demonstrated in patients with diagnosed coronary disease and in those who are clinically well but may be predisposed to coronary disease.[1]

LINODOXINE EMULSION—for *therapy*. LINODOXINE CAPSULES (lower in potency)—for *prophylaxis* or *long-term maintenance*.

1. Van Gasse, J. J., and Miller, R. F.: Current Concepts on the Etiology and Management of Atherosclerosis, Scientific Exhibit, American Medical Association Meeting, New York, June 3-5, 1957.

*TRADEMARK

to reduce or prevent elevated blood cholesterol

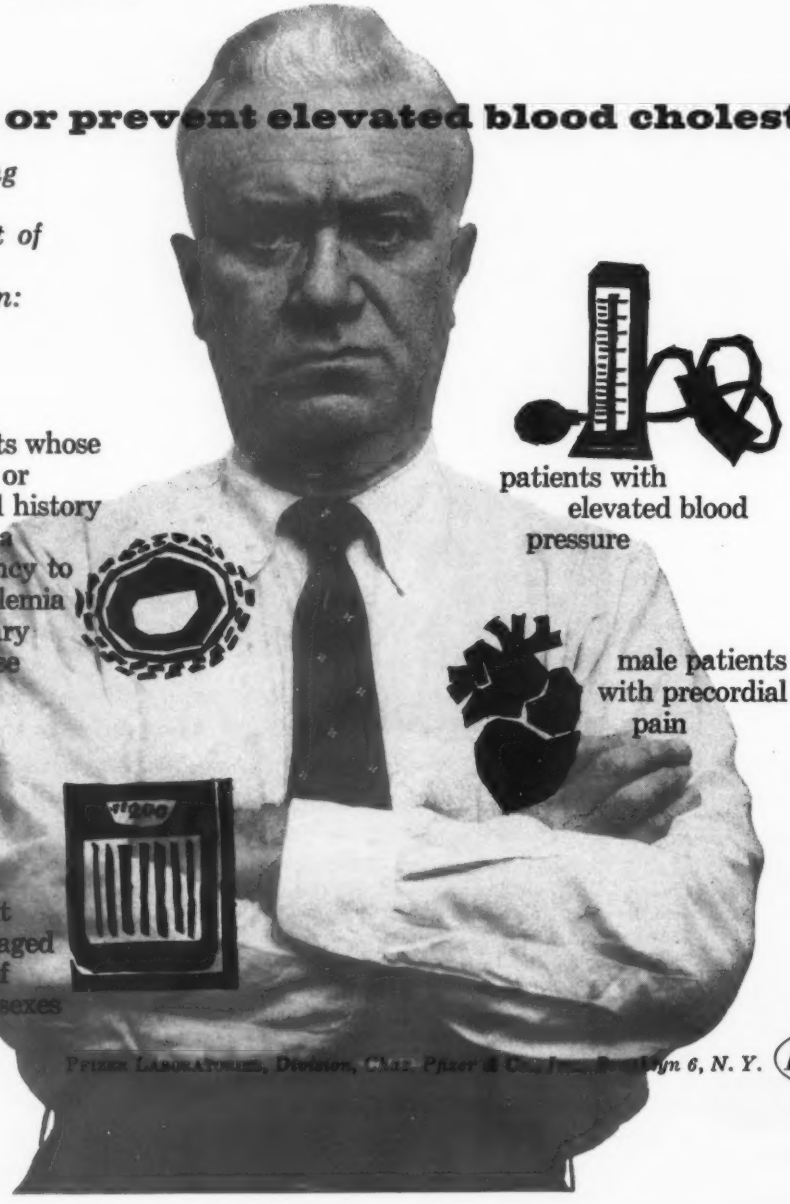
thereby helping to minimize the development of atherosclerosis, especially in:

patients whose personal or familial history suggests a tendency to hypercholesterolemia or coronary heart disease

patients with elevated blood pressure

male patients with precordial pain

overweight middle-aged patients of both sexes



PFIZER LABORATORIES, Division, Chas. Pfizer & Co., Inc., Brooklyn 6, N. Y. Pfizer

ACE-HESIVE®

B-D

for elastic bandaging that stays in place

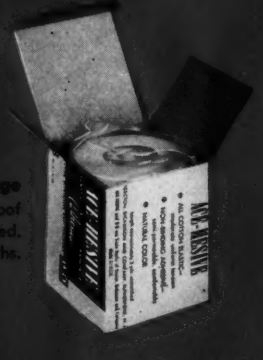
New B-D ACE-HESIVE provides the elasticity and support of famous B-D quality cotton elastic, plus the added strength and holding properties of a specially developed adhesive backing.

- **unfailing support**—will not slip or creep, even in hard-to-bandage areas
- **sufficient elasticity**—correct combination of stretch and tension ensures uniform pressure and ease of application
- **minimum skin reaction**—purest-grade ingredients practically assure freedom from skin sensitivity
- **semipermeable**—permits passage of air and excess exudates

BECTON, DICKINSON AND COMPANY · RUTHERFORD, NEW JERSEY

B-D AND ACE-HESIVE, T.M. REG. U.S. PAT. OFF.

Handy New Tube Package
Twelve inches of ACE-HESIVE cut in 2", 3" or 4" widths. Packaged in a waxed, sealed tube.



Individual Package
Each bandage in a moisture-proof polyethylene bag, individually boxed. In 2", 2½", 3" and 4" widths.

MANDELAMINE... HIGHLY ANTIBACTERIAL YET NOT AN ANTIBIOTIC!

Mandelamine is effective against almost all strains found in urinary tract infections—even those resistant to antibiotics and sulfonamides. Mandelamine won't sensitize patients... no resistant strains develop... side effects are minimal. And Mandelamine is priced at just a fraction of the cost of other antibacterial agents!

Available: In 0.25 Gm. tablets, 0.5 Hafgrams® and pleasantly flavored Mandelamine Suspension for children. **Dosage:** Adults—initial daily dose of 4 to 6 Gm. Children need as little as 1 Gm. daily. (Mandelamine Discs, for quick identification of Mandelamine-sensitive bacteria, available from your laboratory supply house.)

Nepera Laboratories, Morris Plains, N. J.

MANDELAMINE®

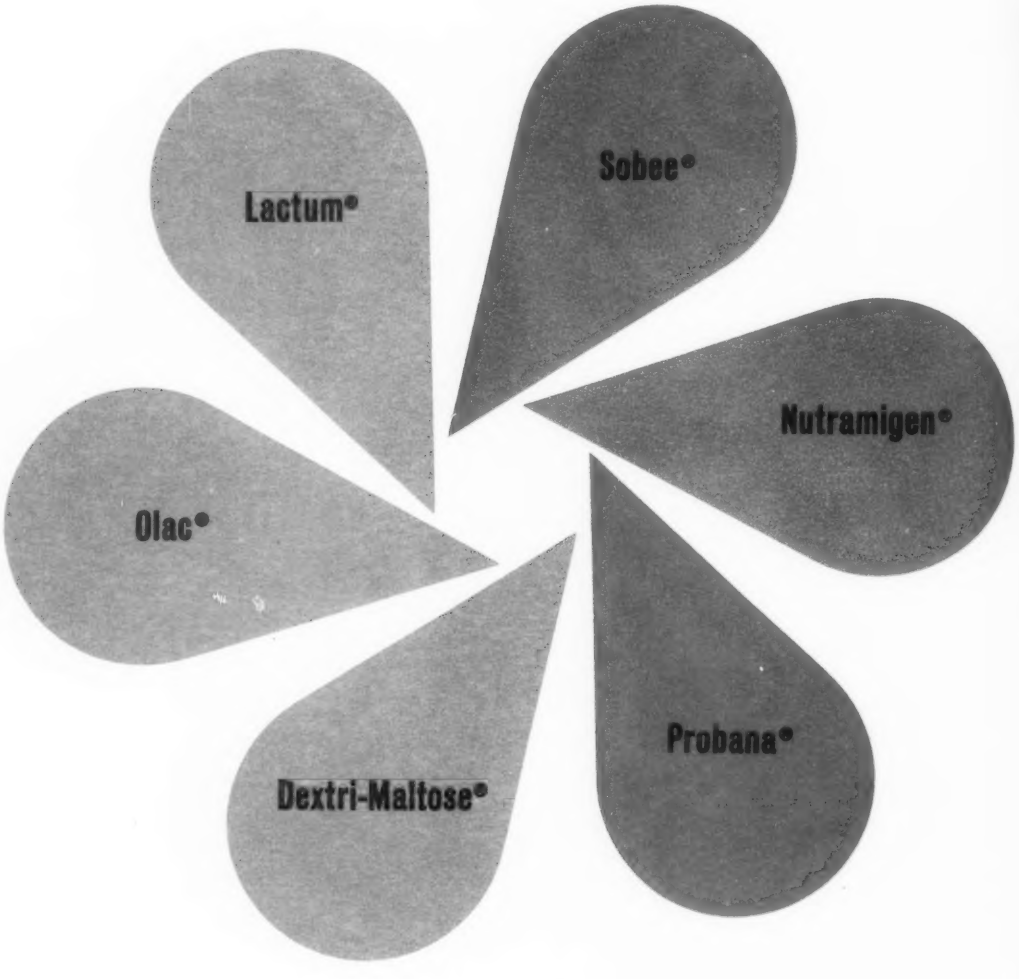
safe and effective for chronic urinary tract infections

NEPERA

your selection is easy because...

for each formula feeding need

you have the convenience of selection of formulation and form



THE MEAD JOHNSON FORMULA PRODUCTS FAMILY

carbohydrate modifier / liquid formulas / powdered formulas

All are easy to prepare, conveniently packaged, readily available

your selection of formulation and form is easy because . . .

when you need a formula for:	*you can prescribe:*	
classic milk-formula feedings	**Lactum** *"Instant" Powder • Liquid*	**The classic infant formula in ready-prepared form** Made from whole milk and Dextri-Maltose . . . based on textbook recommendations. Used successfully in feeding millions of babies.
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flexible feedings	**Dextri-Maltose** *Powder*	**The professional carbohydrate modifier** Manufactured specifically for infant formulas • Meets your highest standards for quality • Three formulations to choose from.
milk-sensitive infants	**Sobee** *"Instant" Powder • Liquid*	**Hypoallergenic soya formula** Requires only water for preparation of nourishing feedings . . . no added carbohydrate needed . . . light color, pleasant taste.
protein-sensitive infants	**Nutramigen** *Powder*	**Ready-prepared formula containing protein in hydrolyzed form** Made from casein hydrolysate, refined vegetable oil, arrowroot starch and Dextri-Maltose plus vitamins and minerals.
nonspecific digestive disorders	**Probana** *Powder*	**Ready-prepared therapeutic formula** Made from protein milk powder, hydrolyzed casein, banana powder and dextrose. Well tolerated in celiac disorders and chronic diarrheas.

YOU CAN SELECT APPROPRIATE INSTRUCTIONS FOR MOTHERS

FROM THE MEAD JOHNSON FAMILY-OF-PRINTED-SERVICES

to save time for you • supplement your discussions • give mothers added confidence

Booklets—"Your Baby's Formula—and How to Bathe and Feed Baby." Simple formula preparation and feeding instructions and some basic advice on infant care. In ordering, specify Lactum Liquid or Milk and Dextri-Maltose and terminal heating or aseptic method. "How to Care for Your Allergic Baby" tells how to use Sobee and also provides some basic information on skin and general care.

Wall Cards—"Your Baby's Food." Cards for mothers to hang up for easy reference provide space for your formula prescription, preparation instructions, and a check list of supplementary foods. These are available for Lactum, Dextri-Maltose and Olac.

Formula Prescription Sheets—Prescription blanks and preparation instructions for the mother may be requested for any Mead Johnson Formula Product.

For a supply of any of these items, and for information on other printed services, ask your Mead Johnson Representative or write to us, Evansville 21, Indiana.

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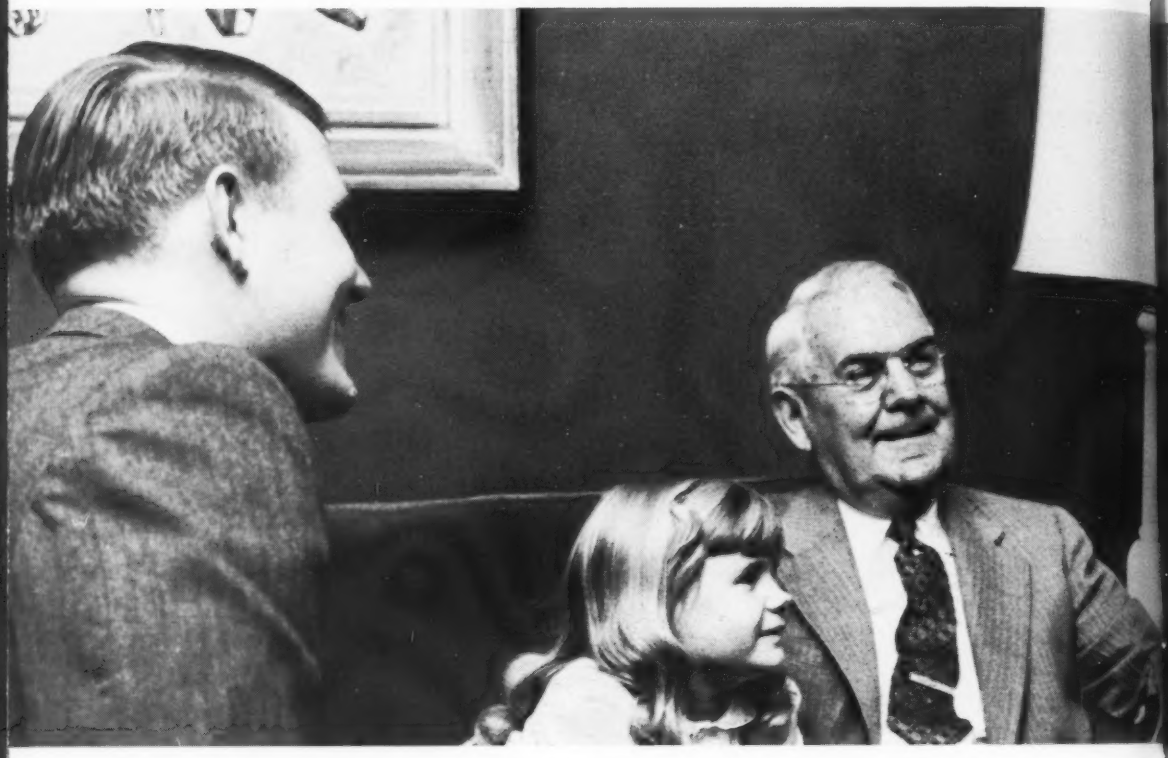
SYMBOL OF SERVICE IN MEDICINE

FP376

management of constipation with the Colace Family



MEAD JOHNSON

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patients of all ages benefit from

Peri-Colace

peristaltic stimulant—stool softener, Mead Johnson

Capsules • Syrup

softens stools and stimulates peristalsis

When bowel motility is inadequate ...***defecation infrequent***... Peri-Colace combines the stool-softener Colace with a new, mild peristaltic stimulant, Peristim (standardized preparation of anthraquinone derivatives from cascara sagrada). Because Colace keeps the stool soft, only a small amount of stimulant is needed. Action is gentle—usually in 8 to 12 hours—and side effects are minimized.

Colace

dioctyl sodium sulfosuccinate, Mead Johnson

Capsules • Syrup • Liquid (Drops)

softens stools without laxative action

When bowel motility is adequate ***but stools need softening***... Colace keeps stools soft for easy passage by increasing the wetting efficiency of intestinal water and promoting formation of oil-water emulsions. With Colace there is no laxative action...no addition of bulk...no side effects. You can safely prescribe Colace for prolonged use.

The service leaflets *Advice on Constipation*—Colace version (Lit. 801), and Peri-Colace version (Lit. 802), will save time for you in instructing patients. Ask your Mead Johnson Representative or write to us, Evansville 21, Indiana.

COS7E

respiratory congestion orally

An orally administered decongestant has much better distribution to the mucous membranes of the respiratory tract than nasal sprays, drops and inhalants. "This affords opportunity for shrinkage in areas that could not be approached by sprays, drops or actual topical applications."

—MORRISON, L. F.: ARCH. OTOLARYNG. 59:48-53 (JAN.) 1954.

The Triaminic form and formulation, described in detail on the following pages, have proved remarkably effective as an oral decongestant.

STOP respiratory congestion orally

relief in minutes...lasts for hours

In the common cold, nasal allergies, sinusitis, and postnasal drip, one timed-release Triaminic tablet brings welcome relief of symptoms *in minutes.* Running noses stop running, clogged noses open—and *stay* open for 6 to 8 hours. The patient can breathe again.

With *topical* decongestants, "unfortunately, the period of decongestion is often followed by a phase of secondary reaction during which the congestion may be equal to, if not greater than, the original condition. . . ."* The patient then must reapply the medication and the vicious cycle is repeated resulting in local overtreatment, pathological changes in nasal mucosa, and frequently "nose drop addiction."

Triaminic does not cause secondary congestion, eliminates local overtreatment and consequent nasal pathology.

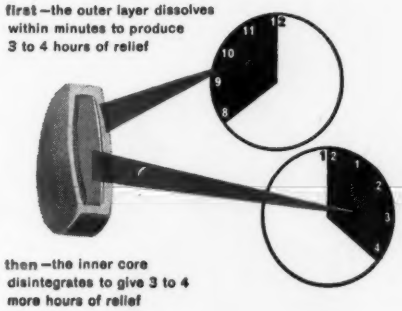
*Morrison, L. F.: Arch. Otolaryng. 59:48-53 (Jan.) 1954.

Each double-dose "timed-release" tablet contains:

Phenylpropanolamine hydrochloride .....50 mg.	for effective decongestant action
Pyrilamine maleate..25 mg.	two antihistamines to combat allergic symptoms without drowsiness
Pheniramine maleate.25 mg.	

Dosage: 1 tablet in the morning, afternoon, and in the evening if needed.

Each double-dose "timed-release" tablet keeps nasal passages clear for 6 to 8 hours—provides "around-the-clock" freedom from congestion on just three tablets a day


first—the outer layer dissolves within minutes to produce 3 to 4 hours of relief
then—the inner core disintegrates to give 3 to 4 more hours of relief

Also available: Triaminic Syrup, for children and those adults who prefer a liquid medication.

Triaminic® "timed-release" tablets

STOP *running noses* *and open stuffed noses orally*

SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska • Peterborough, Canada

respiratory congestion orally

plus control of cough spasm

- **decongestant**
- **expectorant**
- **anti-allergic**

Triaminicol is more than a cough syrup. First, because it contains Triaminic, it decongests nasal passages, and exerts its action on all mucous membranes of the respiratory tract—working at the *source* of cough. Then, Triaminicol provides Dormethan, non-narcotic antitussive that acts directly on the cough reflex.

Fully as effective as codeine, Dormethan is less likely to produce drowsiness or nausea. Its classic expectorant component, ammonium chloride, is well known for its ability to liquefy mucus and aid in the expulsion of exudates from the lungs and trachea.

Each 5 ml. teaspoonful provides:

Phenylpropanolamine hydrochloride	12.5 mg.
Pyrilamine maleate	6.25 mg.
Pheniramine maleate	6.25 mg.
Dormethan*	10.0 mg.
Ammonium chloride	90.0 mg.

in a delicious, fruit-flavored, non-alcoholic vehicle.

**brand of dextromethorphan hydrobromide*

Dosage: Adults—2 teaspoonfuls 3 or 4 times daily.

Children 6 to 12 years—1 teaspoonful 3 or 4 times daily.

Under 6 years—dosage in proportion.

NEW **Triaminicol** syrup

Non-narcotic antitussive

SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska • Peterborough, Canada

STOP coughing for 6 to 8 hours with one "timed-release" tablet

Tussaminic is non-narcotic—the patient simply swallows one timed-release "double-dose" tablet before breakfast to work cough-free all day. Another tablet before dinner lets him relax cough-free all evening. A final tablet at bedtime lets him sleep cough-free all night. Thus, cough relief is measured in hours, not minutes.

Tussaminic is not only valuable for the patient with a coughing cold, but also for the habitual morning hacker. And due to its Triaminic component, associated bronchial and nasal congestion frequently clears.

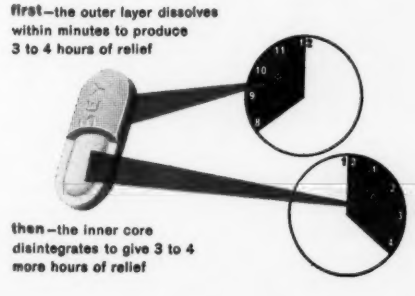
Each "double-dose" tablet contains:

Phenylpropanolamine hydrochloride...	50 mg.
Pheniramine maleate.....	25 mg.
Pyrilamine maleate.....	25 mg.
Dormethan*	20 mg.
Terpin hydrate.....	300 mg.

**brand of dextromethorphan hydrobromide*

Dosage: 1 Tussaminic tablet before breakfast, dinner and at bedtime.

Tussaminic "timed-release" tablets provide prolonged cough relief. Each tablet contains two full doses of long-lasting antitussive, expectorant, anti-allergic and decongestant components.


first—the outer layer dissolves within minutes to produce 3 to 4 hours of relief
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NEW **Tussaminic** "timed-release" tablets

Non-narcotic antitussive decongestant

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STOP respiratory congestion orally

plus control of pain and fever

Congestion and associated discomforts of the common cold can now be treated *orally* with a single preparation — Triaminicin. Containing effective amounts of Triaminic for rapid clearing of the bronchial and nasal passages, Triaminicin also provides aspirin, phenacetin and caffeine to control headaches and fever. Triaminicin Tablets are buffered.

In addition, Triaminicin contains vitamin C to help raise resistance[1,2,3] to wintertime respiratory conditions.

1. Macleod, G., and Sherman, H. C., in Handbook of Nutrition, ed. 2, New York, The Blakiston Company, 1951, p. 254.
2. Brody, H. D.: J. Am. Dietet. A. 29:588, 1953.
3. Frans, W L., and Heyl, H. L.: J.A.M.A. 162:1224, 1956.

Each buffered Triaminicin Tablet contains:

Phenylpropanolamine hydrochloride	25 mg.
Pyrilamine maleate	12.5 mg.
Pheniramine maleate	12.5 mg.
Aspirin (3½ gr.)	225 mg.
Phenacetin (2½ gr.)	150 mg.
Caffeine (½ gr.)	30 mg.
Ascorbic acid	50 mg.
Aluminum hydroxide (dried gel)	180 mg.

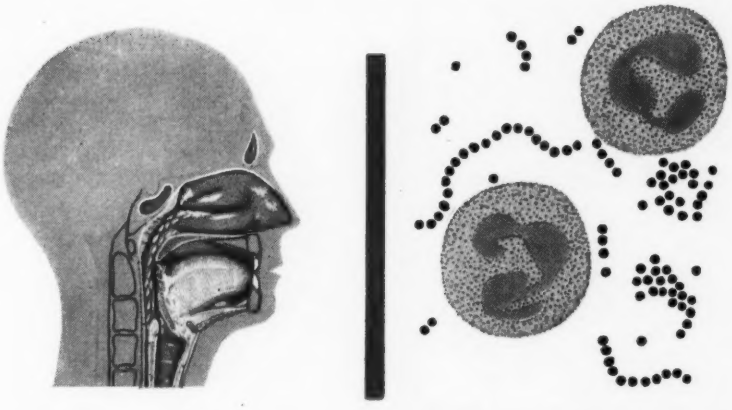
Dosage: 1 tablet every 3 to 4 hours.

NEW Triaminicin tablets

SMITH-DORSEY • a division of The Wander Company • Lincoln, Nebraska • Peterborough, Canada

STOP respiratory congestion orally

plus control of bacterial invaders



With one unique preparation, you can now provide dramatic relief from respiratory congestion, and at the same time protect the patient from secondary bacterial infection. Through the action of Triaminic, its oral decongestant component, nasal patency is often effected within minutes of the first dose; breathing is easy again.

When bacterial invasion threatens, Trisulfaminic offers the wide-spectrum protection of triple sulfas. It is particularly valuable for the "almost well" patient recovering from endemic or epidemic infleunza, and the patient prone to "lingering" or recurrent colds. And in purulent rhinitis, sinusitis and tonsillitis, Trisulfaminic offers a more realistic approach to the total treatment of the patient.

Each tablet or 5 ml. tsp. contains:

Triaminic . . . . . 25 mg.
(Phenylpropanolamine hydrochloride 12.5 mg., Pyrilamine maleate 6.25 mg., Pheniramine maleate 6.25 mg.)
Trisulfapyrimidines U.S.P.....0.5 Gm.

Dosage: Adults—2 to 4 tablets* initially, followed by 2 tablets every 4 to 6 hours until the patient has been afebrile for 3 days.

Children—8 to 12 years— 2 tablets initially followed by 1 tablet every 6 hours. Younger children in proportion.

**Each 5 ml. tsp. of Suspension equals 1 tablet.*

NEW Trisulfaminic tablets and suspension

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first thought for high b.p.*

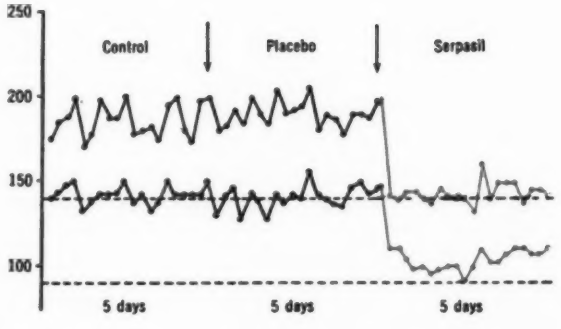

*Chart shows actual response to Serpasil in a patient with benign essential hypertension (data on request). Consider Serpasil® (reserpine CIBA) (1) alone to lower blood pressure gradually and safely in most cases of mild to moderate hypertension; (2) as a primer in severe hypertension before more potent drugs are introduced; (3) as a background agent in all grades of hypertension to permit lower dosage and thus minimize side effects of other antihypertensives.

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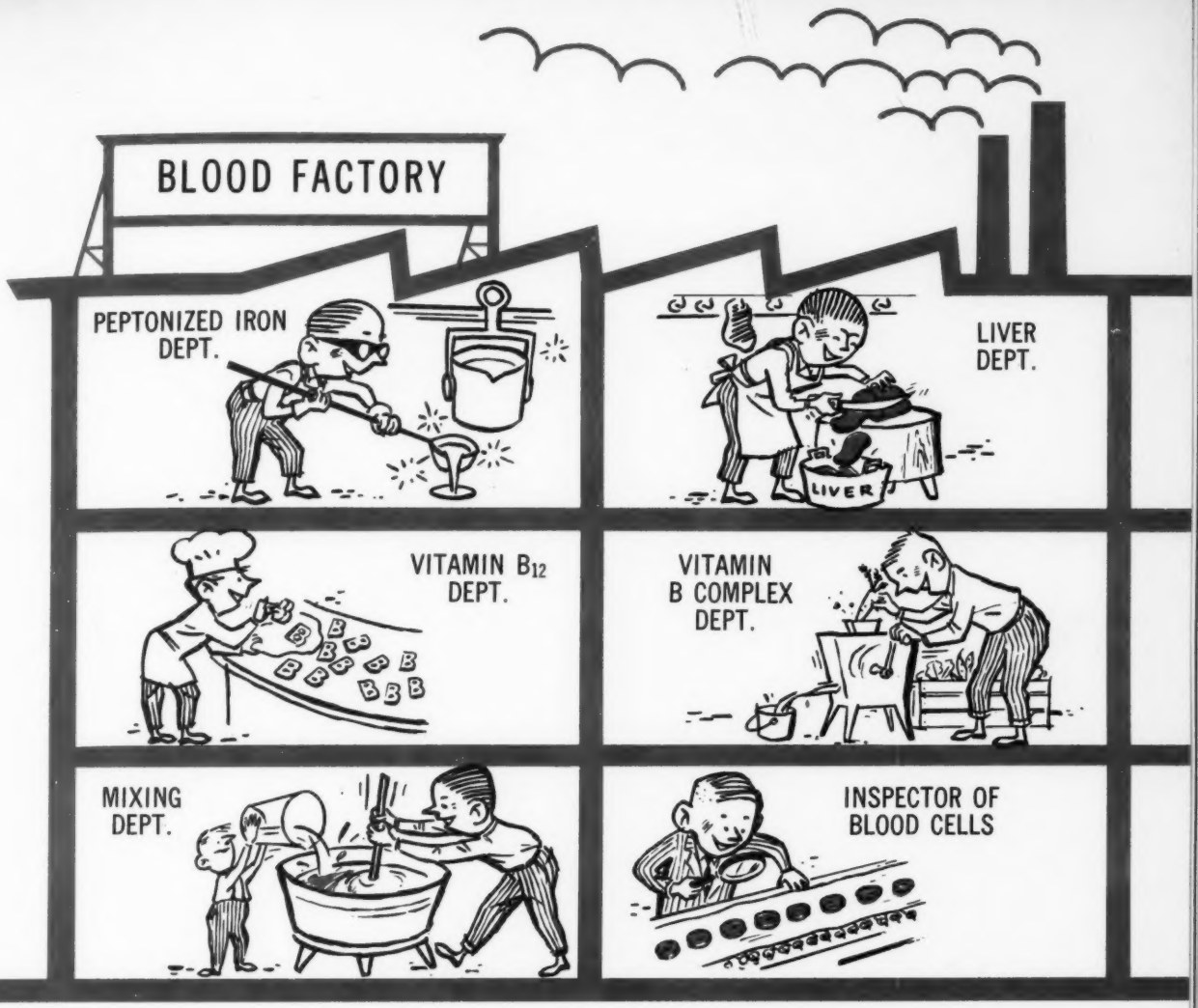

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(Equiv. in elemental iron to	71 mg.)
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Thiamine hydrochloride	10 mg.
Riboflavin	10 mg.
Vitamin B_{12} Activity (derived from Cobalamin conc.)	20 mcg.
Nicotinamide	50 mg.
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Pantothenic acid	5 mg.
Liver fraction 1	2 Gm.
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Inositol	30 mg.
Choline	60 mg.

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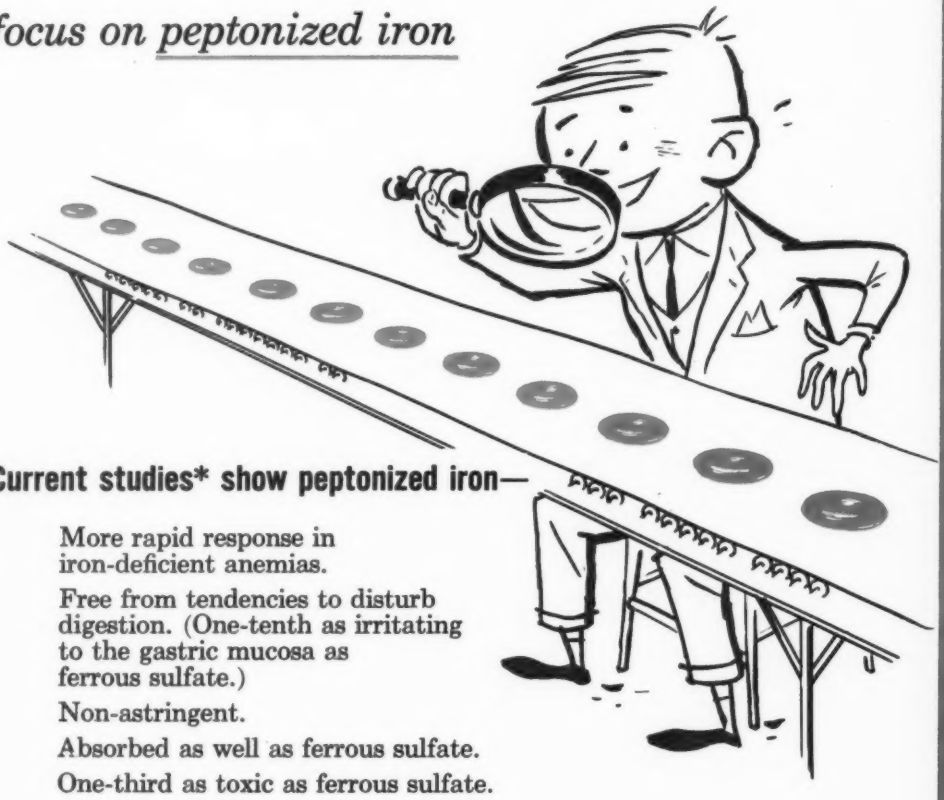

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*Keith, J.H.: Utilization and Toxicity of Peptonized Iron and Ferrous Sulfate, Am. J. Clin. Nutrition *1*:35 (Jan.-Feb., 1957).

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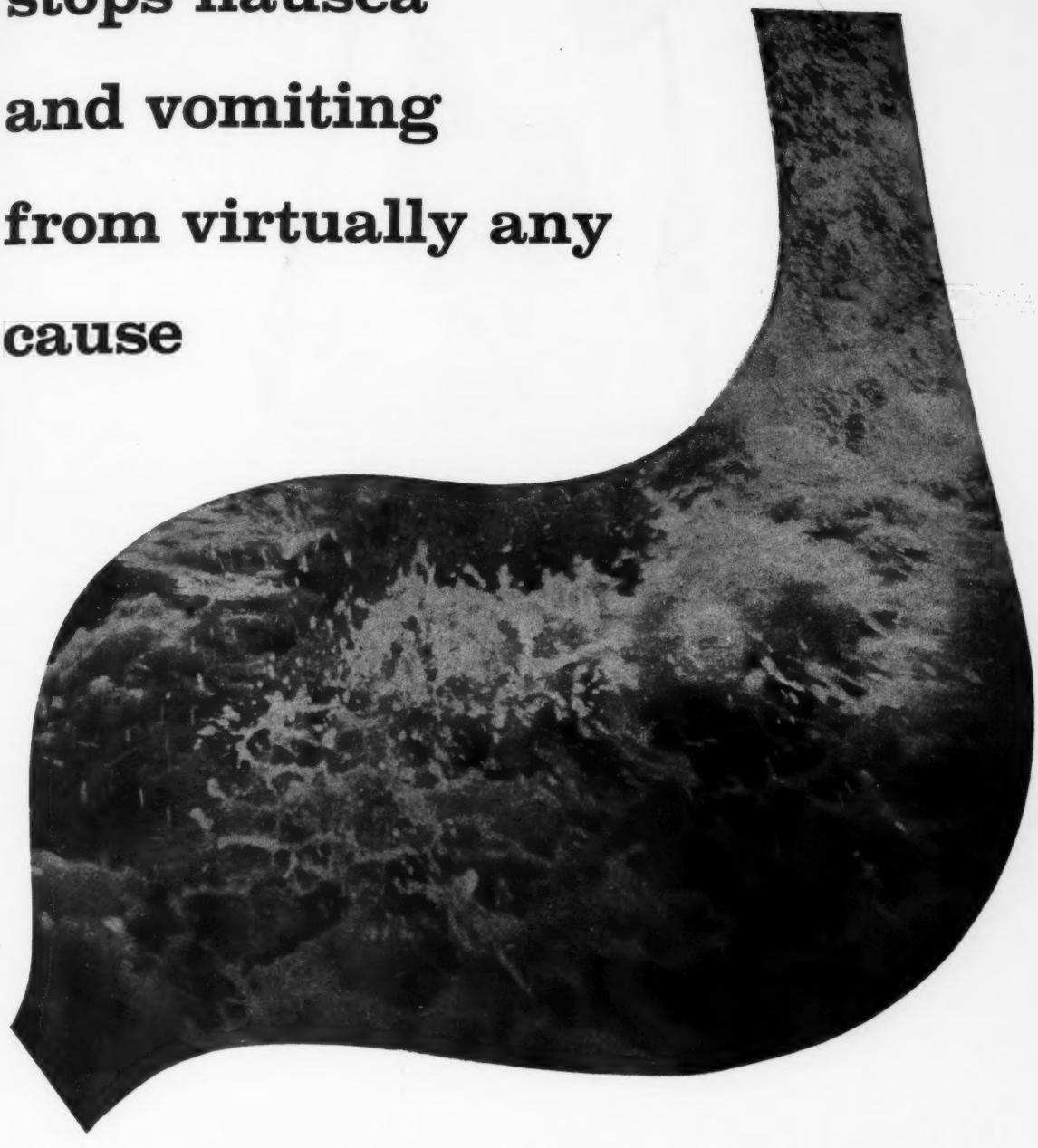

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NEUTRALIZES PENICILLIN

- **acts within an hour, lasts up to a week[1,2]**
- **one injection usually sufficient in cases seen early[3,4]**
- **itching abates promptly[6]**
- **most reactions clear in 12 to 96 hours[3]**
- **well tolerated[1,2]**
- **may be lifesaving in certain anaphylactic reaction cases.[4,5]†**

†"*For this reason, and from these studies, penicillinase* [NEUTRAPEN] *should be kept on hand in every doctor's office or hospital where penicillin is administered.*"[4]

CLINICAL EXPERIENCE WITH NEUTRAPEN

Investigator	Number of Patients	Reaction Cleared	Most Cases Cleared in	Poor* Response
Zimmerman[3]	52	45	12-96 hrs.	7
Becker[4,5]	46	42	24-72 hrs.	4
Minno & Davis[6]	42	42	24-72 hrs.	0
Totals	140	129		11

*The poor or delayed responses occurred when NEUTRAPEN was given weeks or months after onset of allergic symptoms. There was some question in these cases concerning whether penicillin was the causative agent (one case was definitely diagnosed as a food allergy). In all cases where NEUTRAPEN was given promptly, a good response was seen.

The new purified injectable penicillinase, NEUTRAPEN, aborts penicillin reactions. An enzyme, it catalyzes the hydrolysis of penicillin to penicilloic acid, which is nonallergenic. Current therapy—antihistamines, ACTH or steroids—treats effects. NEUTRAPEN counteracts the cause by neutralizing the penicillin itself, thereby offering a new concept of treatment and the promise of safer penicillin therapy.

penicillin levels at zero 4 to 7 days[1,2] The action of NEUTRAPEN is specific, rapid and long-lasting. Its effect in inactivating circulating penicillin has been shown to occur within an hour after injection, and to continue for four to seven days.[1,2] In a study of the action of NEUTRAPEN on penicillin blood levels in 20 subjects, a single injection kept penicillin blood levels at zero for up to a week even in those subjects who continued to receive two injections of penicillin a day.[1]

"highly effective"[3] NEUTRAPEN effected prompt and complete clearing of reactions in 45 of 52 cases reported by Zimmerman.[3] When given in the first month, one injection of NEUTRAPEN usually cleared the reaction in 12 to 96 hours. Becker[4,5] noted complete clearing of urticaria and angioedema within 24 to 72 hours in 42 of his 46 patients. The absence of relapses was termed "a major clinical achievement...."[4] Minno and Davis[6] were "...impressed with the prompt relief of itching which was noted in nearly every case...." Of their 42 cases studied at the U.S. Naval Hospital, Great Lakes, 15 were ambulatory and asymptomatic in 24 hours, 13 were ambulatory and/or asymptomatic in 48 hours, 1 asymptomatic in 72 hours, and 13 asymptomatic in four to six days—complete clearing in all 42 cases.

well tolerated[1-7] On the basis of pharmacologic studies, Chen and his co-workers[2] found NEUTRAPEN to be "...virtually nontoxic, even at dose levels several hundred times the minimum effective dose." Clinically, NEUTRAPEN has been shown to be well tolerated when used intramuscularly.[6]

PENICILLIN REACTIONS

PEN®

(Penicillinase Injectable,* SchenLabs)

†may be lifesaving In the acute anaphylactic reactions which cause patients to expire within minutes, NEUTRAPEN would not have time to be effective, but it may be lifesaving in anaphylactic reactions that sometimes occur within an hour or several hours after injection of penicillin.[4,5] In such cases, Becker states, NEUTRAPEN "...may be of great benefit, and may be given intravenously as well as intramuscularly. With rapid inactivation of the offending antigen followed by supportive therapy consisting of pressor agents and other means to control the shock, it is felt that many or all of these patients could be salvaged. For this reason, and from these studies, penicillinase [NEUTRAPEN] should be kept on hand in every doctor's office or hospital where penicillin is administered."[4]

adjunctive therapy Antihistamines and, when indicated, ACTH or steroids may be used with NEUTRAPEN. Such adjuvant therapy, while not essential in mild to moderate reactions or those treated soon after they appear, may be needed in severe or long-standing reactions. NEUTRAPEN inactivates the penicillin allergen, but it does not act directly on the pre-existing allergic lesion.

indications

Therapeutic: NEUTRAPEN is indicated in all cases of penicillin reaction except the immediate type of anaphylactic reaction.

Prophylactic: When drugs and vaccines (notably poliomyelitis vaccine) which contain small amounts of penicillin are given, it is recommended that NEUTRAPEN be administered concurrently to those patients (1) who are known to be sensitive to penicillin, and (2) who have a history of allergy, since the incidence of penicillin reactions is far higher and apt to be more severe in this group.

Differential Diagnosis: In summarizing his experiences with NEUTRAPEN, Zimmerman suggests that its "...response may be considered a useful tool in the differential diagnosis of eruptions where penicillin is only one of several possible inciting allergens. This has legal, as well as medical, application."[3]

dosage and administration NEUTRAPEN, 800,000 units I. M., injected as soon as possible after signs and symptoms of penicillin reaction appear. If necessary, dosage may be repeated at 3-day to 4-day intervals. A third dose is rarely required. In anaphylactic reactions 800,000 units should be given intravenously as soon as possible and immediately followed by 800,000 units intramuscularly.

contraindications and side effects There are no specific contraindications to NEUTRAPEN. Some soreness at the site of injection, which may be accompanied by erythema and local edema, may be noted in some patients, but it is transient and of no serious consequence. The intravenous use of penicillinase has been reported to cause chills and fever in some cases. NEUTRAPEN should not be given concurrently with the therapeutic administration of penicillin because it would destroy the penicillin.

supplied NEUTRAPEN is supplied in single-dose vials containing 800,000 units of purified injectable penicillinase as lyophilized powder. For use, NEUTRAPEN must be reconstituted with 2 cc. of sterile distilled water. This gives an isotonic solution, ready for injection. NEUTRAPEN is stable at room temperature in the dry state, hence may be kept in the physician's bag for routine or emergency use. After reconstitution, NEUTRAPEN must be refrigerated and will retain its potency for one week.

references: (1) Becker, R. M.: New England J. Med. *254*:952, 1956. (2) Chen, J. Y. P.; Bard, J. W., and Balsito, A. A.: Antibiotics Symposium, Oct. 3, 1957. In press. (3) Zimmerman, M. C.: Antibiotics Symposium, Oct. 3, 1957. In press. (4) Becker, R. M.: 106th Ann. Meet., A.M.A., New York, N. Y., June 5, 1957. (5) Becker, R. M.: Antibiotics Symposium, Oct. 3, 1957. In press. (6) Minno, A. M., and Davis, G. M.: J.A.M.A. *165*:222, 1957. (7) Davis, G. M.: Discussion, Antibiotics Symposium, Oct. 3, 1957.

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*Coodley, E.: Clin. Med. 4:1509, (Dec.) 1957.

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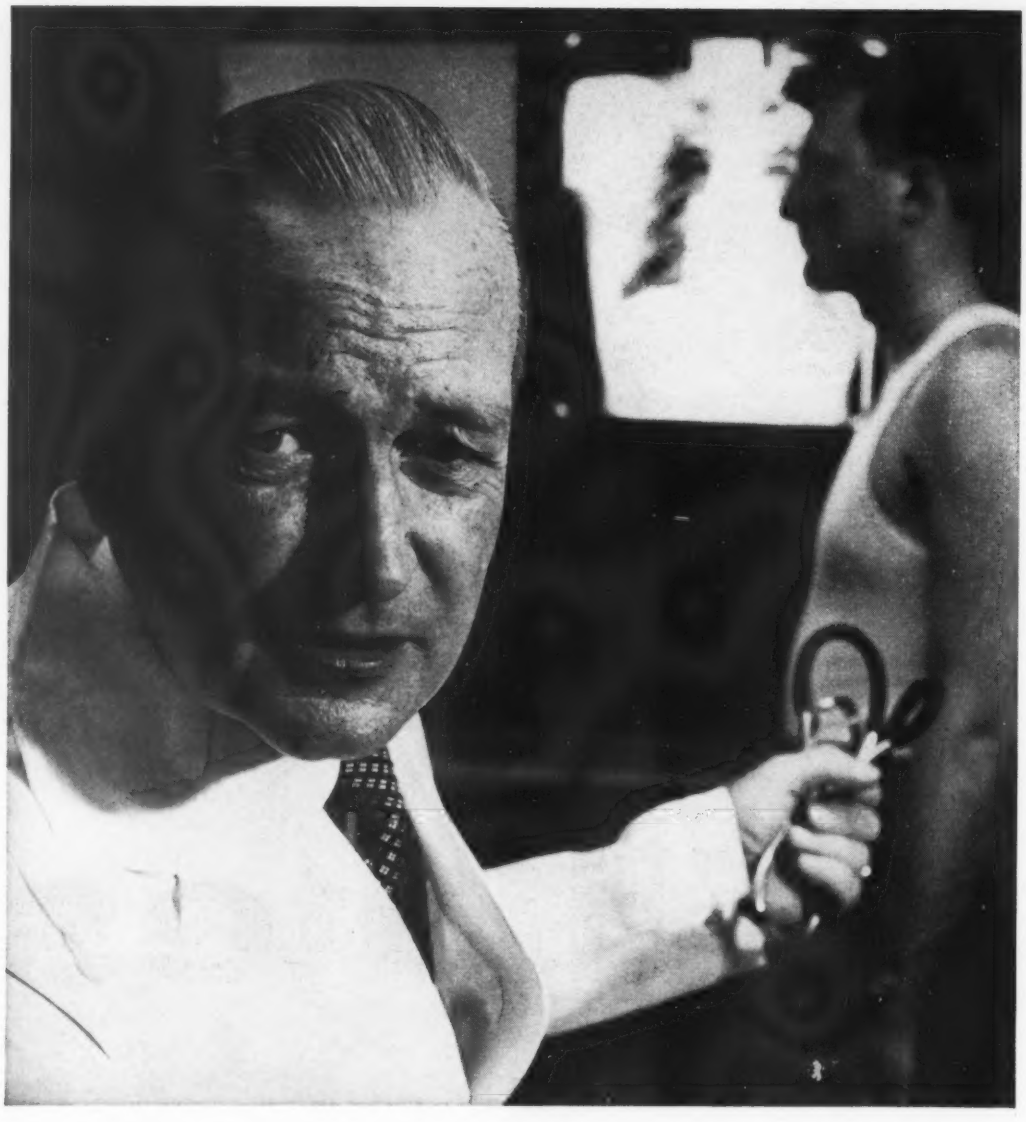

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The JOURNAL of the AMERICAN OSTEOPATHIC ASSOCIATION

February 1958 Vol. 57, No. 6

METABOLIC response to surgical STRESS

Detection and management*

JOSEPH P. FRESOLONE, B.S., D.O.
Philadelphia, Pennsylvania

DURING THE PAST 20 years, it has been possible to recognize in some detail a variety of endocrine alterations with associated metabolic changes which are characteristic of surgical convalescence. Surgical convalescence is a bodily adjustment to a new set of external and internal circumstances. The changes of convalescent endocrinology and the metabolism of trauma are indissolubly linked. The two occur together and are best described together as a basis for the understanding of normal convalescence and, through this, the abnormal.[1] Knowledge of normal physiology and metabolism of surgery is essential to the interpretation, recognition, and treatment of abnormal physiologic and metabolic changes. It is the purpose of this paper to outline the underlying principles which should guide daily surgical care according to the chronologic sequence of the convalescence.

I. Normal metabolic consequences of trauma

Moore's "scale of ten" is helpful in evaluating the extent of trauma.[2] In general, the greater the magnitude and duration of the trauma, the greater will be the depth and the duration of the response. A third degree burn of 25 per cent or more of body surface is considered at scale 10. Major gastrointestinal anastomotic surgery is considered 5. Appendectomy, herniorrhaphy, or uncomplicated cholecystectomy are scale 3. Minor injuries are scale 1. Crush wounds of the chest, multiple or compound fractures, or penetrating wounds of the chest or abdomen may be scale 7, 8, or 9. Nephrectomy, lobectomy, or prostatectomy are in the range of scale 4, 5, or 6.

Moore[1] has divided normal surgical convalescence into four stages. He has appropriately given names to these four stages which describe the underlying metabolic events responsible for the clinical reflections. These stages are:

1. Adrenergic-corticoid phase
2. Corticoid withdrawal phase
3. Spontaneous anabolic phase
4. Fat gain or late convalescence phase.

Adrenergic-corticoid phase

This first phase normally extends from 1 to 3 days after surgery.

Endocrinologic events.—

1. Adrenal medulla: There is an increase in adrenal medullary activity preoperatively as evident in the rise in pulse rate and blood pressure with narrowing of the pulse pressure, constriction of skin vessels, excessive sweating, and a rise in blood glucose. These signs are most marked if the patient is in severe pain, is very apprehensive, or approaches clinical shock due to reduced blood volume; they are quite minimal in the absence of any of these circumstances.

2. Adrenal cortex: Upon injury secretion of ACTH is immediately increased, and there is a consequent increase in adrenal steroid hormone secretion. This response is first reflected in the eosinophil count, which drops to zero and remains there for 2 to 5 days, and then in the urinary excretion of the degradation products of these hormones. The urinary excretion of 11-oxysteroid corticoids is increased normally after surgical trauma, and the increase persists for 1 to 6 days.[3] The 17-ketosteroid excretion increases only irregularly early after trauma. There is a prompt rise in 17-hydroxycorticosteroids in plasma.[4,5] The first phase would seem to emphasize the abrupt increase from resting secretions of sodium, water-retaining hormones (desoxycorticosterone and aldosterone), and antianabolic hormones (hydrocortisone, cortisone, and compound S). Later these secretions decrease and anabolic hormones increase as the next phase is entered.

3. Antidiuresis: Following trauma there is prompt antidiuresis which in all probability is caused by increased secretion of antidiuretic hormone by the posterior pituitary. It seems that this response is a part of the broad picture of endocrine activation by the hypothalamus.[6]

4. Thyroid: Increase in secretion of thyroxin by the thyroid gland seems a part of the metabolic consequence of trauma. This response is due to increased pituitary output of thyrotropic hormone, with oxygen consumption being elevated in direct proportion to the severity of the injury. The level of oxygen consumption returns to normal when wound healing is complete. Normal serum PBI (protein bound iodine) levels and normal uptake of I^{131} by the thyroid gland have been observed by several investigators.[3,7] Although thyroxin is being formed at an increased rate by the gland, it is utilized in the tissues in increased amounts, resulting in little net change in serum concentrations of thyroxin. Urinary excretion of iodine increases after trauma, suggesting that metabolism of iodine and presumably

*This paper was submitted to the faculty of the Philadelphia College of Osteopathy in partial fulfillment of the requirements for the degree of Master of Science.

of thyroxin is altered by injury. It is certain that a normal thyroid is essential for a normal trauma response; patients with hypothyroidism are notoriously intolerant to surgical trauma unless they have been rendered euthyroid. In severe trauma thyroid overactivity is slow to begin, but persists at least through the anabolic phase of convalescence. It would appear that an increased level of metabolism generally would be helpful in enabling the patient to withstand trauma successfully.

5. Gonads. Gonadal function is decreased after injury. In the female, amenorrhea occurs after extensive surgery, and there is often a male type of hair growth observed in women who have extensive injury.

Water and electrolytic changes.—

1. Body water: Total body water volume changes little unless exogenous administration is greater or less than is necessary to maintain zero balance. Oliguria of 500 to 700 ml. is the rule, the urine volume rising in the next few days to 1,000 to 1,500 ml. This decrease in urine volume is a favorable sign and a guide to the recognition of a good response. Forcing larger volumes tends to alter unfavorably the normal metabolic picture.

2. Sodium: Renal sodium excretion drops to zero or low levels of 5 to 20 mEq.,[1] and the sweat excretion of sodium falls. Sodium concentration in serum falls, the hyponatremia being in direct proportion to the magnitude of the trauma. This is a favorable sign if there are no extrarenal losses or cardiac or renal disease; this balance should not be tampered with therapeutically. It occurs despite marked sodium conservation and increased potassium excretion. This positive sodium balance continues for about 3 days.

3. Potassium: Excretion varies from 70 to 150 mEq. on the first postsurgical day, depending on the magnitude of trauma. On the second and third days the excretion of potassium gradually falls to 30 or 40 mEq. The serum potassium concentration does not change. Sweat excretion of potassium increases during this phase.

4. Chloride: Chloride in general follows the urinary and perspiratory pattern of sodium, but no noteworthy changes occur.

5. Bicarbonate: Bicarbonate concentrations may decrease slightly.

Body Weight, nitrogen and calories.—

1. Body weight: An abrupt weight loss occurs. This loss suggests rapid oxidation and utilization of body fat because it is out of proportion to the negative nitrogen balance and body water changes.

2. Nitrogen: Because of the absence of intake and increased rate of urinary nitrogen excretion, a negative nitrogen balance exists. The increased nitrogen excretion rate is in direct proportion to the magnitude of trauma, amounting to 12 to 15 grams of nitrogen with extensive trauma and as little as 5 grams with moderate trauma. The nitrogen loss can be assumed to be derived from intracellular protein because there is no intake. The rate of excretion decreases progressively in approximately 3 to 5 days of stage 1. This negative balance cannot be converted to a positive balance in this stage, regardless of food intake or administration of parenteral amino acids, because excretion rates rise further. The negative nitrogen balance at this time is part of a good response, and nothing should be done to alter it.

3. Calories: Caloric intake is low, being supplied usually by parenteral glucose in amounts of 150 to 500 calories daily. It is highly improbable that the body can utilize greater caloric intake at this stage.

Clinical reflections.—

Apathy with no interest in surroundings is characteristic. The patient is reluctant to move about in bed. Rectal temperature is normally elevated slightly for about 72 hours. Reflections of adrenal medullary action may persist a few hours postoperatively as mild tachycardia, sweating, and increased blood pressure levels. The patient has no interest in food. Peristalsis is audible for 12 to 24 hours, then disappears. The listless attitude continues for 2 to 5 days, its duration depending on the magnitude of trauma. Pain alters the clinical picture as the patient wants attention to the alleviation of the pain.

On the first day, urine volume is only about 500 ml., but it increases to 1,000 to 1,500 ml. in the next 2 days. Peristalsis reappears, and expulsion of flatus per rectum on the second to the fourth postsurgical day helps to identify the end of stage 1.

The primarily sutured wound has little tensile strength. The accumulation of leukocytes and extracellular fluid containing the compounds found in plasma characterizes this period. The wound gains strength each day, if no dead tissue and virulent organisms are present. This process occurs by the conversion of protein precursors into the intercellular structure of collagen. A requisite for this reaction to occur is vitamin C.

Corticoid withdrawal phase

This second phase occurs approximately 4 to 8 days postoperatively.

Endocrinologic events.—

1. Adrenal medulla: In this phase and phases to follow, adrenal medullary activity is insignificant.

2. Adrenal cortex: This phase follows the first phase on the fourth day and lasts 2 to 3 days. Cortical activity declines; this is suggested by the rise of eosinophil count, fall of blood glucose level, and diuresis of water and sodium. The latter also suggests a diminution in posterior pituitary output of antidiuretic hormone.

3. Gonads: No appreciable change of gonadal function is recognized in this phase.

Water and electrolyte changes.—

1. Body water: A decline becomes apparent about the fourth day, the degree depending somewhat upon the degree of overhydration or underhydration during the first stage. If 24-hour urine volumes are being measured, water diuresis can be readily detected about the fourth or fifth day, and an abrupt weight loss can be seen.

2. Sodium: Increased secretion of sodium also occurs which is greater than the amount of sodium that may have been administered, being in direct ratio to the amount of sodium retained in stage 1. The net loss is small, if excessive sodium has not been administered.

3. Potassium: Excretion rates of urinary potassium decline sharply about the fourth postoperative day to 5 to 20 mEq. as potassium is loaded, and a marked positive potassium balance results. Positive nitrogen balance and nitrogen loading are slower to occur. In the first stage, potassium was lost in relatively greater amounts than the intracellular potassium-nitrogen ratio; in this second stage it is retained in relatively greater amounts. Potassium excretion increases in 2 or 3 days as potassium intake is increased by diet. This puts the patient in a weakly positive potassium balance as the anabolic stage begins.

4. Chloride and bicarbonate show no significant changes.

Body Weight, nitrogen, and calories.—

1. Body weight: Weight loss continues, but rapid oxidation of fat has slowed and the weight decline is accounted for by body water and lean tissue changes.

2. Nitrogen: Excretion rates of nitrogen fall progressively, gradually reaching zero balance, even though nitrogen is given in amino acid solutions or in the diet. This decrease reflects the decline in catabolic intracellular protein destruction, and indicates metabolic preparation to begin anabolic processes and load nitrogen. *At this point the anabolic nitrogen loading processes will not begin unless calories and nitrogen are supplied.*[8-10] Well directed parenteral therapy may be helpful in initiating the next stage. The drop in nitrogen excretion may be from 15 to only 5 grams in 2 days during this stage.

3. Calories: As the patient displays food interest, caloric intake normally increases progressively.

Clinical reflections.—

Food interest increases on the fourth or fifth day. At this point the patient desires to talk to family and friends, and physical activity is increased of his own volition. However, he finds that he has no staying power and is not able to do things as he had anticipated. Post-traumatic diuresis occurs, and body weight declines further as a consequence.

Anabolic phase

The third phase includes approximately the eighth to fourteenth days postoperatively.

Endocrinologic events.—

1. Adrenals: Antianabolic hormones are at a resting level as evidenced by the normal eosinophil count. The 17-ketosteroid excretion is usually low, which is peculiar and unexplained, since the anabolic phase is associated with nitrogen loading. Adrenal androgens, and other adrenal anabolic endocrine forces of unknown origin, may be secreted in amounts which are above normal.

2. Thyroid: Thyroxin continues to be secreted in amounts above normal.

3. All other endocrine glands appear to return to presurgical resting levels.

Water and electrolyte changes.—

1. Body water: Total body water increases fairly proportionately to the lean tissue being synthesized, which is 75 per cent water. An average diet is being ingested by the patient.

2. Sodium: Excretion and ingestion of sodium are about equal; therefore the patient is in zero balance.

3. Potassium: Potassium balance is just positive, and potassium loading is in the normal intracellular ratio to nitrogen of 2.5 mEq. of potassium per gram of nitrogen.

Urine and serum electrolyte concentrations are normal.

Body weight, nitrogen, and calories.—

1. Body weight: Weight gain begins and is proportional to the positive nitrogen balance and unrelated to fat gain, which is minimal.

2. Nitrogen: A stronger positive nitrogen balance occurs, and nitrogen loading is characteristic. This positive balance cannot be forced; it requires a balanced diet with emphasis on protein and vitamins. It is important that calories be supplied in adequate amounts.

3. Calories: Adequate protein synthesis will proceed if 2,000 to 3,000 calories daily are provided in an approximate metabolic mixture of carbohydrate 50 per cent, protein 28 per cent, and fat 22 per cent.[8]

Clinical reflections.—

The patient has real hunger on the sixth to eighth days, and desires a full diet. He is quite active and finds that he can tolerate the increased activity. Sexual functions begin to return. Menstruation is in abeyance, but may begin toward the end of this stage. Urine volume is normal.

In the wound, tensile strength continues even in presence of negative nitrogen balance. This is a result of fibroblastic activity and the formation of intercellular collagen. The wound at 7 days is a thin line appearing much as it did when originally sutured; at 5 to 7 weeks it is a red, raised, thickened cicatrix.

Fat gain or late convalescent phase

This phase extends from about 10 days postoperatively through the weeks or months until recovery is complete.

Endocrinologic events.—

The hormonal metabolic stimulus to fat gain and storage is unknown. Excretion of 17-ketosteroids gradually rises, and eosinophil counts remain normal. In the female, the male type of hair growth characteristic of the catabolic phase disappears, and normal physical appearance returns, along with normal menses.

Water and electrolyte changes.—

The total body water remains unchanged, and weight gain is attributable to fat.

Body weight, nitrogen, and calories.—

1. Body weight increases progressively and is directly related to fat gain.

2. Nitrogen is at zero balance.

3. A high caloric intake is necessary to permit steady fat gain. If the patient returns to hard work, his caloric intake must be increased still further.

Clinical reflections.—

The strength of the patient increases, but there is ease of fatigue for a few weeks before a full return of bodily vigor and of sexual function.

During nitrogen anabolism, the wound becomes a red, raised cicatrix, often somewhat sensitive to the touch. As the patient passes into the later phase of convalescence, the wound gradually broadens, softens, turns white, and may become concave or wrinkled. The fine suture marks often are obliterated completely.

This completes the normal metabolic and clinical events initiated by surgery. If this metabolic sequence of surgical convalescence is kept in mind, an abnormal response can be anticipated, identified, and appropriately dealt with, both prophylactically and therapeutically.

Recognition of patients unable to undergo normal metabolic response to surgical stress

The preoperative evaluation of a patient to predict his metabolic response to the contemplated procedure can be surprisingly accurate. There are a number of sources for this information: personal history, physical examination, and biochemical studies. The studies are relatively simple, and, when properly interpreted, they provide help in the detection of a patient likely to have an abnormal response. Laboratory findings cannot be substituted for diagnostic acumen and a trained mind; rather, they sharpen and enhance clinical judgment.

The importance of recognizing abnormal condi-

tions cannot be overestimated, since the success of treatment for abnormal response is in direct ratio to how early therapy is begun.

General considerations

Nutritional state.—

It is important to make inquiry concerning the nutritional state for the year or years prior to illness. A malnourished patient may manifest the "depletion response" described in the third section of this paper. He is susceptible to infection because of inadequate antibody formation, to shock, and to wound dehiscence. Gastrointestinal motility may be slowed, and surgical convalescence more "sensitive." Preoperative replacement with protein, carbohydrates, fat, nitrogen, water, and electrolytes should be begun as soon as possible. Basal calories must be provided from food, so as to spare body tissues. Tissue synthesis requires the presence of energy as calories, as well as of the essential amino acids.[10] Administration of proteins along with carbohydrates and fats places the patient in a better position to initiate a good surgical convalescence when he is in zero or positive nitrogen balance preoperatively.

It is also important to determine body weight preoperatively for comparison each day after operation, since an unusual degree of weight loss over the first 72 hours (6 to 8 kg.) would suggest an abnormal response to surgery.

Mental state.—

In the elderly, history of transient mental confusion, hallucination, or acute personality change is of extreme importance since such symptoms occur early in dehydration. When these symptoms appear in a previously keenly alert oldster, the interpretation suggests metabolic abnormality. Often mental symptoms are the only manifestations during the first several days of significant metabolic deviation.

Whether the patient is apathetic, dull, lethargic, tense, alarmed, or frightened is also significant in the light of the metabolic response to trauma.

Respiratory function.—

An attempt at clinical estimation of pulmonary reserve and pulmonary function should be made. This is very important in the aged. An attempt should be made to elicit any signs and symptoms of pulmonary emphysema. A simple breath-holding test is helpful: the normal average time breath can be held is about 40 seconds; less may indicate a decrease in pulmonary reserve. If the patient can hold his breath for only a few seconds, it may be because of compensated acidosis decompensated promptly by breath holding.

Tests for vital capacity and/or maximum breathing capacity may provide evidence of obstructive pulmonary emphysema and allow the surgeon to predict how satisfactorily the patient can compensate changes in hydrogen ion concentration.

Thoughtful and careful observation of the respiratory pattern and the rate and depth of respiration is very useful. In states of alkalosis there is a shallow, perhaps slightly irregular type of breathing with an increase in rate. The increase in pH inhibits pulmonary ventilation, decreasing carbon dioxide excretion as a compensatory measure. In states of acidosis of body fluids the respiratory pattern is one of an increase in both the depth and rate, increasing carbon dioxide excretions; the depth is much more important than the rate. By observing respiration for 2 to 3 minutes much early information regarding the state of hydrogen ion control is obtainable.[11]

Water and electrolyte balance

The severity of dehydration cannot be estimated reliably by any laboratory procedure. The use of detailed laboratory studies is useful and not to be neglected, but even serial determinations will not provide the vital information given by thorough history taking, physical examinations, and continued detailed clinical observation and re-examination during the course of therapy with interpretation by one informed in surgical metabolism.

Thirst.—

The stimulus to thirst is related to the effective osmotic pressure of extracellular water or cellular dehydration rather than total osmotic pressure. Hypertonicity or increase in concentration of extracellular water may be associated with thirst when the extracellular volume is contracted, as in simple water deprivation or lack of intake, as well as when extracellular water is expanded and its concentration increased by hypertonic solutions. In both instances the intracellular volume is contracted or dehydrated. According to the osmotic rule, water flows from the area of less concentration to the area of greater concentration; hence the cells lose water and the stimulus to thirst is initiated.

There are certain pitfalls in assuming that when thirst is absent the patient has no need for fluids. If there is a history of loss of sodium ion from the body in the form of diarrhea, vomiting, sweating, or draining fistula, even in the absence of thirst there is basis for a diagnosis of sodium depletion. Extensive sweating or irrigation by a Miller-Abbott tube with distilled water and recovery of large amounts of electrolytes from the gastrointestinal tract may result in reduction in plasma and extracellular water sufficient to cause a drop in blood pressure and tachycardia, without thirst. The same is true after simple hemorrhage of 500 ml.; but with hemorrhage sufficient to produce shock, thirst is unquenchable unless blood volume is restored. Inquiry into the presence or absence of thirst is important in suspected shock.

Skin and buccal mucosa.—

In assessing the state of water balance the skin is always observed and its texture and turgor are noted. Additional information may be obtained by examining the axillae and groin with the back of the hand for the presence of moisture. When the body is trying to conserve water, the axillae and groin are dry, indicating water losses or a primary water deficit consequent to lack of intake. If the axillae and groin are moist, and there is a history of loss of water and electrolytes from the body, it is safe to assume that the losses tended to be of electrolytes rather than water.

The presence or absence of visible perspiration may be helpful in diagnosis. Simply passing the hand over any part of the skin in an effort to determine whether or not there is moisture present may be very informative. In the presence of excessive sweating in a hot environment, sodium and water depletions may occur, with daily losses amounting to 2,000 to 5,000 ml. Such losses increase to a marked degree in fever, shock, or trauma.[12] After trauma, the sweat glands, nephron-like, decrease secretion of potassium (paralleling the kidney's metabolic behavior during surgical convalescence), changing to water and sodium excretion and potassium retention in the corticoid withdrawal phase.

The physician should not be quick to assume a negative water balance when he observes a dry, leathery tongue. Mouth breathing produces a dehydrated-looking tongue which is frequently misleading. The mucosa

inside the upper and lower lips can be inspected by putting a finger in the oral cavity; this is a more reliable method of clinical assessment. If this membrane is dry and the finger does not slide easily, the patient has a water deficit.

Vomiting.—

To identify the probability of an extrarenal response the physician should inquire in detail into the the frequency and estimated magnitude of losses. For instance, the fact that a patient vomited twenty times is far more significant than if he vomited five times. Detailed inquiry is necessary into whether it was vomiting or retching, how the vomitus looked and smelled, and how it tasted to the patient.

Electrocardiograph.—

Electrocardiograms reflect electrolyte depletions and excesses, particularly potassium. A low serum level of potassium is reflected electrocardiographically by flattening and elongation of T waves and prolongation of the Q-T interval. Serial electrocardiograms are diagnostic because comparison of tracings taken an hour apart may reveal abnormal serum potassium level. This aids in determining whether a multiple electrolyte solution should be given. Serial tracings provide prompt information without the delay in chemical determinations.

Urine volume.—

Lashmet and Newburgh[13] demonstrated that under normal conditions the kidneys excrete from 35 to 40 grams of solids per day. The minimum volume of liquid in which 1 gram of urinary solute can be dissolved is 15 ml. A daily urine output of 500 ml. is satisfactory only for patients with normal renal function and maximal excretory powers at work. The obligatory urine volume varies from one patient to another and under differing circumstances in the same patient. Essentially it depends upon two factors: the concentrating power of the kidney and the load of end products or solutes seeking excretion. Urinary volume is also dependent on the composition of the blood. Body water is available for urinary excretion after water needs of the lungs, skin, and gastrointestinal tract have been met.

Under most circumstances the urine volume varies directly with the amount of solutes excreted in it. Gamble[14] showed that a patient given a high carbohydrate, low protein, low sodium diet may produce as little as 200 milliosmols of solutes per 24 hours. After proximal tubular treatment the 200 milliosmols are contained in about 700 ml. of water and can be excreted, with normal renal function; after distal tubular treatment, excretion takes place in about 150 ml. of water with a specific gravity of 1.035. A mean figure for solutes in urine is 600 to 800 milliosmols per liter, or a specific gravity of 1.015, requiring 1500 to 2000 ml. of water for excretion. Reversible diminution in renal concentrating power is frequently a part of operative shock mechanism and very severe illness.

Daily estimates of solute load and an educated guess as to how the patient's kidneys can manage are good ways to anticipate trouble in very sick patients. Knowledge of this sort may assuage anxiety regarding urinary volumes of 200 to 300 ml., which under certain circumstances may be good rather than cause for undue concern. In certain situations kidneys can excrete enormous quantities of water, but there is certainly a maximum obtainable dilution as there is a maximum obtainable concentration. Hence, careful inquiry into approximate urinary volumes should never be neglected.

The collection of 24-hour urine volume in a labeled container with preservative is better than the older technic of measuring and discarding when studying intake and output of urine. When a catheter is in the bladder, the collection of 2- to 4-hour specimens with calculation of urine flow rates is helpful in close observation postoperatively.

Urinalysis.—

Simple bedside tests when properly evaluated in the light of the particular metabolic state and renal function have much usefulness: the urine pH on freshly voided specimens, the specific gravity done serially, the acetone and glucose test, or quantitative chloride determination. Spot checks of quantitative urinary sodium, potassium, and chloride may occasionally be needed in seriously ill patients. Spot checks of 24-hour nitrogen content of the urine are also helpful. When the urinary nitrogen drops from 15 to 5 grams, it is certain that the provision of adequate amounts of calories and protein is strongly indicated.

Adrenal function

For the detection of hypoadrenal response the Thorn test and total eosinophil count are helpful.[15] The procedure most often employed is as follows: eosinophil count at 8 a.m., followed by 40 mg. of ACTH intramuscularly, and eosinophil counts taken 2, 4, and possibly 6 hours later. Many use only the 4-hour determination. An initially high eosinophil count or a failure to fall by less than 50 per cent suggests adrenal cortical insufficiency. It should be remembered that the eosinophil test is a maximal response to minimal stimulus and that a good metabolic response is possible even though the eosinophil test may be positive. The more abnormal it is, the more likely are metabolic deviations to occur. At the Philadelphia College of Osteopathy Hospitals tests for the ratio of urinary excretions of uric acid and creatinine are employed simultanously to help decrease the factor of human error.

Two tests designed to bring out adrenal cortical insufficiency which may be utilized in or out of a hospital are the water loading test[16-18] and the cortisone test. Only the water loading test will be described, and for this the technic and interpretation will be given:

1. Withhold fluids from 10 p.m. to 7 a.m.
2. Have patient empty bladder at 7 a.m.
3. Give 1,500 ml. of tap water between 7 and 7:30 a.m.
4. Collect urine at half-hour intervals in separate containers, for 4 hours.
5. Specific gravity and quantitative urine chloride determinations may be done on each specimen utilizing the Uclotest tablets.

Interpretation: A normal peak of diuresis occurs in 2 hours. Normally the patient delivers over 50 per cent of water load in 4 hours. Failure to deliver 50 per cent or more is evidence of adrenal cortical insufficiency if other causes for delayed water excretion are not present, such as portal cirrhosis or congestive circulatory failure. The specific gravity normally falls from about 1.015 to 1.020, to 1.004 to 1.001. If the specific gravity changes little or increases, this also suggests that adrenal steroids concerned with reabsorption of sodium in the renal tubules are not active.

Circulatory system

Pulse.—

Simple palpation of the pulse still constitutes a good clinical guide. The quality of the pulse is more

important than the rate. Interpretations of pulse qualities are as follows:

1. A thready, not easily compressible pulse is indicative of a high systolic blood pressure with probably a narrow pulse pressure.

2. An easily felt or full pulse resistant to compression indicates a high systolic pressure with a fairly wide pulse pressure.

3. A bounding, easily compressible pulse indicates a lowered systolic pressure with a wide pulse pressure and is the type of pulse felt in decreased blood volume and impending circulatory failure, hypotonic dehydration, or hemorrhage.

4. A thready, easily obliterated pulse signifies a drop in both systolic and diastolic pressure and is seen during circulatory collapse.

5. If a bounding, easily compressible pulse becomes imperceptible when the patient sits or stands, or when the head of the bed is propped up, he is on the verge of circulatory collapse as a result of decreased blood pressure. These patients are quite apprehensive and frequently restless, as though they anticipated the impending vascular collapse. They may complain of giddiness and actually faint during such testing procedures. A more sensitive index is comparing the blood pressure taken with the patient supine with that taken with the patient somewhat elevated. If the blood pressure falls, though the patient may have no other symptoms with it, this also suggests a contracted plasma volume.

In observing the pulse, the physician must take account of the thickness of the skin, sclerosis of the vessel wall, the position of the arm, and any pre-existing disease.

Circulation.—

Peripheral hand veins usually empty in an elevated position and fill in a dependent position in 3 to 5 seconds. Patients with sodium depletion and extracellular water dehydration with contracted plasma volume may show filling in 10 or 12 seconds in a dependent position, or not at all. Conversely, slow emptying of veins constitutes one of several reliable guides to states of overhydration or expanded extracellular water volume. In incipient shock, patients may show this slow filling of hand veins for some time before there is a drop in blood pressure.

Occasionally, one may see the rather strange combination of shock mechanism with falling blood pressure, rapid, thready pulse, and sweating, but associated with full peripheral veins and actually increased venous pressure. In this instance, peripheral veins empty slowly. Precisely what this means is not known, but it constitutes one indication for consideration of intra-arterial transfusion as therapy for shock.

Plasma volume.—

The pulse and blood pressure taken as described above are very helpful in detecting contracted plasma volume along with determining the venous pressure by observation of hand or wrist veins. The veins are observed first in a dependent position, and then the hand is gradually elevated. The veins are observed normally to collapse in 4 to 5 seconds after reaching the approximate level of the right atrium. If the veins empty slowly or remain distended when the hand is above this level, venous pressure is probably elevated and expansion of the extracellular fluid volume has occurred. When hand veins fail to fill or require more than 5 seconds to fill while held in a dependent position, a contracted plasma volume is indicated. This may occur in incipient shock before there is a significant, sustained fall in blood pressure.

Mechanical means for plasma and/or blood volume determinations have fast become practical in surgical patients. The oldest method of testing plasma volume is that of using the small Hellige visual comparator with permanent glass standard and determining the color difference of serum samples drawn before and 10 minutes after injection of a known amount of T-1824, Evans blue dye.[19] Noble and Gregerson[20] modified this method and showed that reliable results could be had in patients who were in shock as well as those in normal states.

Blood volumes may be readily determined by study of the erythrocyte mass, using radioactive chromium. This method is simple and is easy for repeated determinations. A diminished blood volume is particularly common in the presence of chronic debilitating disease or in physiologic aging.

Shock.—

The mechanism of shock may be active in the presence of a normal blood pressure. To anticipate this condition, the information about the following is necessary; type of pulse, skin color, warmth of the skin, body temperature, presence or absence of sweating, appearance of the peripheral veins, and the patient's mental state, plus determination of blood pressure in erect and supine positions. These physical signs are most significant. In shock, repeated blood pressure determinations disclose fluctuating blood pressures. Changes in skin temperature from one 15-minute period to another may occur. Skin color changing from some degree of pinkness to pallor often precedes more prominent manifestations. When the veins fill normally, there occurs a rise in blood pressure and return of skin warmth and skin color. When venous filling is accompanied by persistent hypotension and a bluish-red blotchy appearance the prognosis is grave, because the cardiac output remains low and the patient may be in irreversible shock. Arterial transfusion should be considered at this point or before this point is reached.

Blood chemistry.—

Determinations of the serum electrolytes sodium, potassium, chloride, bicarbonate, and pH are important. If these tests are done preoperatively, they will serve as a baseline for occasional spot checks postoperatively. It is important, however, to treat the patient and not his electrolytes.

(To be concluded in the March JOURNAL*)*

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AFIBRINOGENEMIA*

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AMNIOTIC FLUID EMBOLUS occurs in the presence of amniotic and meconium debris in the maternal circulation. If the patient survives the initial shock, she may die of uncontrolled hemorrhage due to incoagulability of the blood.

This condition was first mentioned in 1899 by DeLee[1] who called it "a type of hemophilia." Dieckmann reported in 1936 that fibrinogen levels were greatly reduced in patients who hemorrhaged after abruptio placentae.[2] Steiner and Lushbaugh[3] gave the first complete description of the syndrome in 1941 and ascribed it to amniotic fluid embolism and defibrinogenation of the blood. The report in 1950 by Mallory and his associates[4] included the case of a woman who lived long enough after an amniotic embolism to hemorrhage, but no attention was given to that aspect of the disease. Reid, Weiner, and Roby[5] reported in 1953 what was probably the first successfully treated case. By June 1953 only 46 cases had been reported,[6] but since then many cases have been described in the literature.

The incidence of this condition has been reported as from 1:3,148[7] to 1:8,000.[8] At Metropolitan Hospital 2 cases have occurred in 5,759 deliveries, an incidence of 1:2,879.

Etiology and pathology

Amniotic fluid embolus results from the sudden entrance into the maternal circulation of the debris of amniotic fluid and meconium.[9-11] This is thought to result from strong uterine contractions forcing amniotic fluid into the uterine venous sinuses[12,13] or into the lacerated veins of the cervix as it dilates.[14] This may also occur at cesarean section.[12] The debris has been found in the pulmonary and uterine vessels several times.[9,10,13,15] The shock resulting from the pulmonary embolus may cause death.[16]

Amniotic fluid contains thromboplastin, and if death does not occur, the thromboplastin from the debris and fluid causes fibrinogen to turn to fibrin, causing coagulation of the blood in the smaller arterioles.[17] This uses up the circulating fibrinogen of the blood stream and causes the blood to be incoagulable. Fibrinogen levels of from less than 100 to 150 mg. per 100 cc. (the minimum needed for good clot formation) to zero have been found.[18]

Fibrinogen levels remain normal during normal pregnancy, labor, delivery, and the puerperium.[19]

Investigation has shown that the principal change in the blood in these cases of hemorrhage is the loss of fibrinogen, although small amounts of fibrinolysin (heparin-like substance) have been detected.[20] This could account for the infrequent finding of emboli in the vessels.[21]

Laboratory work has been done on this condition, and several investigators have reported being able to produce afibrinogenemia in animals. Amniotic fluid plays a part in the intrauterine coagulation of blood and assists in postpartum hemostasis.[22] Weiner, Reid, and Roby[23] showed in 1949 that 0.1 cc. of amniotic fluid would shorten by at least half the normal coagulation time of freshly drawn venous blood.

Amniotic fluid alone did not produce emboli in the rabbit and dog, but meconium did.[24,25] Death has been produced by rapid injection of amniotic fluid, and defibrinogenation by slow infusion.[14] Hunter and his group[26] could not get animals to bleed in these experiments, but Weber[27] states that he can produce the condition in his laboratory at will.

There are two other well-defined entities that lead to afibrinogenemia: abruptio placentae[28-32] and intrauterine fetal death of long standing.[33-36] The mechanisms of these are similar. Afibrinogenemia has also been described in cases of necrotic decidua postpartum,[37] convulsions and eclampsia,[38] and velamentous insertion of the cord with a small tear in the membranes at that point.[15]

Death occurs in 10 per cent of those patients who survive the initial shock of amniotic fluid embolism and develop afibrinogenemia.[7]

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Several theories have been projected as the cause of the afibrinogenemia:

1. Toxic effects of the placental and fetal substances may interfere with liver production of fibrinogen.

2. Substances of placental and amniotic origin with a thromboplastinic activity may enter the maternal circulation and lead to defibrination of the plasma.

3. Fibrinolytic enzymes originating from the decidua and placenta may enter the maternal circulation.

4. Hemorrhages may represent an exaggerated fibrinolytic defense process following penetration of thromboplastin into the maternal circulation.[39]

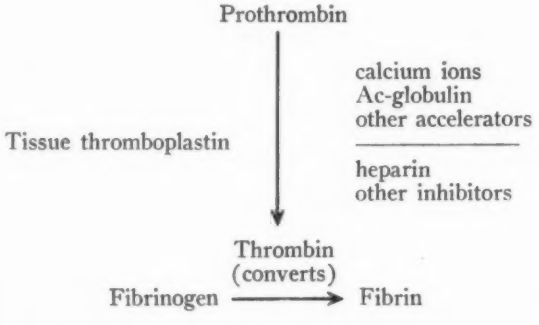
Murphy, Picot, and Thompson[38] state two possible explanations of failure to clot:

1. Destruction of fibrin by fibrinolysin which is normally carried in the globulin portion of the blood.

2. Immobilization of fibrin by thromboplastic substances released in the blood stream with resultant intravascular clotting. (These substances could enter the blood stream by amniotic infusion and embolism.)

In abruptio placentae a retroplacental hematoma forms in the decidua in a laceration of the decidual plate; degeneration and necrosis follow. Tissue juices and tissue debris become mixed into the blood and escape back into the circulation, introducing large amounts of thromboplastin into the blood stream.

The chart below shows, in brief, what is thought to occur in abruptio placentae.[40]



In the case of a dead fetus, the process is the same as above but it takes place more slowly. The least time for afibrinogenemia to occur is about 4 weeks.

Amniotic fluid contains thromboplastin but no prothrombin, thrombin, heparin, or any fibrinolytic substance. Ruptured membranes and tumultuous labor could force amniotic fluid between the membranes and the wall of the uterus into the maternal sinusoids at the uteroplacental site or into the lacerated endocervical veins in the lower uterine segment. The fluid crossing the decidua acquires a high concentration of thromboplastin, thus producing an intravascular coagulation reaction, amniotic fluid embolus with anaphylactoid shock, and probably total defibrination.[38]

Since Pitocin has been employed in many cases in which amniotic fluid embolism has occurred, its use to speed up labor is considered hazardous.[36,41]

Diagnosis

The prompt diagnosis of amniotic fluid embolism depends upon the alertness of the obstetrician and his awareness of the possibility of the development of afibrinogenemia.

The first symptom may be the patient's expression of the feeling of impending doom;[42] this may be in the midst of a tumultuous labor. With the shock of the embolus, the patient may in turn become cyanotic,[5,14,43] have convulsions, and become comatose. Frothy sputum may appear on the lips.[8] If the patient lives to regain consciousness, she may complain of pain in the chest.

Reid[44] has stated that severe respiratory distress during an otherwise normal labor is pathognomonic of amniotic fluid embolism. If the patient survives the original embolus, she may start to bleed from the uterus, gingivae, bladder, rectum, or nose; hematomata will form and ecchymoses will develop wherever the skin is subjected to any pressure. Blood spilling on the floor will not clot but will have the appearance of a red lake.

Afibrinogenemia should be considered in all cases of bleeding after the usual causes for postpartum hemorrhage have been eliminated.

The laboratory diagnosis of afibrinogenemia is comparatively simple. A tube of blood drawn from a vein will fail to clot if the fibrinogen level is below 100 mg. per 100 cc. Marginal deficits will result in formation of an unstable clot which will dissolve in a short period, usually about ½ hour. Actual fibrinogen levels may be determined, but this procedure is unnecessary in view of the urgency of the treatment.

At Metropolitan Hospital it is our routine to do serial tests of coagulation times on all patients who are suspected of having abruptio placentae. These are done every hour,[45] and both clotting time and clot dissolution are carefully observed. The tube of blood is taped to the patient's bed where it is easy to see, and even taped to the operating room wall during cesarean section. Blood has been drawn during a cesarean section when it seemed that there was an unusual amount of bleeding.

The patient with known intrauterine fetal death should be checked at weekly intervals and blood drawn for fibrinogen level determination.

Coagulation of the blood

The factors responsible for the normal coagulation of blood as described by Kennan and Bell[46] are as follows:

I. Platelet factors:
   a. Platelet thromboplastic factor which activates thromboplastinogen.
   b. Platelet factor I which induces prothrombin to thrombin conversion.
   c. Platelet factor II which accelerates the conversion of fibrinogen into fibrin.
   d. Platelet factor III which opposes the activity of heparin

II. Plasma factors:
   a. Those used in coagulation
      1. Thromboplastinogen
      2. Prothrombin
      3. Calcium
      4. Plasma Ac-globulin
      5. Proconvertin
      6. Fibrinogen
   b. Those which oppose coagulation
      1. Antithromboplastin
      2. Antithrombin
      3. Heparin cofactor
      4. Profibrinolysin

III. Serum factors:

a. All those factors found in plasma, except fibrinogen, in concentrations directly related to their utilization in coagulation
b. Serum Ac-globulin
c. Convertin
d. Thrombin
e. Metathrombin

Coagulation is initiated by the destruction of platelets with the release of their factors. When thromboplastin is formed, a minimal amount of prothrombin is converted to thrombin. Thrombin is needed for the activation of the labile accelerator, Ac-globulin. Since this part of the mechanism is autocatalytic, the Ac-globulin converts an excess of prothrombin to thrombin. In the presence of this excess, fibrinogen is changed to fibrin and coagulation occurs. The excess thrombin is adsorbed onto the surface of the fibrin. This effectively prevents defibrination by removing this excess of thrombin.

Treatment

When afibrinogenemia has been diagnosed, the best treatment available is immediate intravenous administration of fibrinogen. This material should be stored in every hospital admitting maternity patients, as the need may be sudden and severe. At least 6 grams should be available. Many areas of the country have designated certain hospitals to store large quantities of fibrinogen to supply the needs of surrounding hospitals and communities.

Two to 6 grams of fibrinogen will usually stop bleeding[5] and cause good clot formation, although up to 12 grams have been needed. A rule of thumb might be roughly 1 gram of fibrinogen per 500 cc. of blood given. The body rapidly replaces the fibrinogen once the hemorrhage has stopped.[47]

If fibrinogen is not available, the best treatment is transfusion with freshly drawn whole blood or direct transfusion. A rule to remember is: *Do a cut-down early.*[41]

The usual methods for maintaining blood pressure, oxygenation, and fluid replacement are necessary. Plasma expanders and plasma, as well as glucose and saline solutions, have their place, but only as stop-gap measures until fibrinogen has been obtained.

Operation for removal of the uterus has been performed many times but any success with this method has been coincidental with adjustment of the clotting mechanism.

An interesting historical note is that in 1950 there was speculation as to whether, since this was a thrombosis with resultant defibrination, treatment might not consist of heparin.[48]

Further complications of this condition are beyond the scope of this presentation, but may be briefly mentioned. If the patient's blood pressure is not restored to normal in a short time, renal shock with lower nephron nephrosis and shutdown may result. Long periods of shock may also result in pituitary necrosis and the development of Sheehan's disease. The management of these complications requires careful medical supervision.

Case reports

Case 1. A 25-year-old pregnant woman with known diabetes mellitus whose previous two pregnancies had terminated in abortion was admitted to Metropolitan Hospital March 1, 1953, with intractable nausea and vomiting. The first day of the last menstrual period was August 4, 1952, and the expected confinement date was May 14, 1953. The prenatal course was complicated by varying blood sugar values. For about 4 to 6 weeks prior to the patient's admission the fundus had not risen noticeably in the abdomen, and fetal heart tones had not been heard at any time.

On March 3 the patient went into active labor and delivered a macerated anencephalic 3-pound stillborn fetus without anesthesia. Postpartum hemorrhage developed with bleeding from all mucous membranes, the blood clotting mechanism seemed to fail, and the patient went into shock. Blood drawn at the time did not clot in 24 hours.

The pulse rate rose to 200 per minute. Intravenous Synkayvite, Koagamin, 1500 cc. of whole blood, and other fluids containing insulin and penicillin were given. By morning the patient seemed to have passed the danger point.

The postpartum period was stormy until the diabetes was finally stabilized. The patient was discharged in good condition on March 19, 1953. The final diagnosis at the time was idiopathic purpura.

Case 2. A 23-year-old white woman, gravida I para O, was admitted to Metropolitan Hospital at 3:00 p.m. August 20, 1956, with possibly ruptured membranes. She had been seen by her family physician on the previous January 4, at which time physical examination showed nothing unusual and the past history contained nothing of significance. The first day of the last menstrual period was November 8, 1955, and the expected date of confinement had been determined to be August 15, 1956. Uterine enlargement was consistent with approximately 8 weeks' gestation. The blood pressure was 122/70.

The patient was Rh positive and the serum was nonreactive. Urinalysis was normal. The patient had been seen at eighteen prenatal visits and at no time were any blood pressure or urine abnormalities found. The total weight gain was 29 pounds. Pelviencephalography performed August 7, 1956, showed a borderline disproportion at the inlet and the outlet.

On admission to the hospital the patient was routinely prepared for delivery, and given an enema, and 10 mg. of vitamin K intramuscularly. The cervix was not dilated, the fetal heart tones were 144 per minute, and blood pressure was 132/80.

At 10:00 p.m. the patient had irregular uterine contractions. By 2:30 the following morning contractions of good intensity were occurring every 3 minutes, and the cervix was dilated 4 cm. The station was minus 3. An hour later the dilatation was 6 to 7 cm. and the station minus 3.

The membranes ruptured spontaneously at 4:01 a.m. The position was right occiput transverse, and the station remained minus 3. By 4:20 a.m. the station was 0. Caudal analgesia with 1.5 per cent Metycaine was started 5 minutes later. While the patient was being prepared for caudal analgesia she was screaming and saying that she was going to die. The blood pressure at this time was 110/80.

At 4:45 a.m. the patient vomited, and became semicomatose, unresponsive, and cyanotic. There was froth about the lips, and the tongue protruded. The blood pressure was unobtainable. The respirations were deep and labored. Thinking that this reaction may have been caused by the spinal injection of Metycaine, although there had been no return of spinal fluid upon administration of the caudal analgesia, we

elevated the head of the bed, gave oxygen by mask, and administered 10 minims of Neo-Synephrine subcutaneously. Systolic blood pressure of 110 mm. was now obtainable.

In 15 minutes the patient's condition was fair, the vertex was on the perineum, and the patient was moved to the delivery room. It was thought best to deliver the child as soon as possible if it was still alive. While being transferred to the delivery table, the patient had a convulsion, became cyanotic, vomited, and became comatose, and the blood pressure was again unobtainable. Injection of 10 minims of Neo-Synephrine was repeated subcutaneously, oxygen by mask was continued, and 5 per cent glucose in water was started intravenously. A blood pressure reading of 200/110 was then obtained. In a short time the patient became responsive and complained of headache and severe pain in the chest. The blood pressure varied from 180/110 to 130/100.

During preparation for the delivery the bladder was catheterized without difficulty, but removal of the catheter was followed by a small spurt of blood from the urethra. At 5:29 a.m. a stillborn male fetus weighing 8 pounds 11 ounces was delivered by outlet forceps after a right oblique episiotomy. The placenta was expressed intact at 5:34 a.m., and profuse bleeding followed. Pitocin, 1 cc., was given intramuscularly. The blood pressure was 80/60. A hematoma was seen in the area of the episiotomy.

At 6:30 a.m. the uterus was packed. Fifteen minutes later plasma was given, and the patient was put in Trendelenburg position. At 7:00 a.m. she again became comatose and cyanotic, and the blood pressure was unobtainable. Oxygen had been given continuously by mask. Injection of Neo-Synephrine was repeated subcutaneously, and the blood pressure at 7:30 a.m. was 110 mm. systolic.

An hour later infusion of whole blood was started through a femoral vein cut-down. The intern who had typed and crossmatched the patient's blood reported at this time that it had failed to clot. It was noted that the blood on the floor of the delivery room lay in a large lake instead of the expected clots. The diagnosis of afibrinogenemia was considered at this time, and the hospital supply of fibrinogen (2 grams) was administered through a venous cut-down in the right leg. More fibrinogen was obtained from other hospitals in the city and 5 grams more were given. This resulted in cessation of the bleeding.

The patient became responsive, the pulse rate was between 160 and 200 per minute, and the blood pressure was 94 mm. systolic.

At 11:30 a.m. the clotting time of a tube of venous blood was 8 minutes. At 5:00 p.m. the clotting time was 6½ minutes, and the following day it was 4½ minutes.

In the delivery room the patient had been given 3,500 cc. of whole blood, 7 grams of fibrinogen, 1 unit of plasma, 500 cc. of 5 per cent glucose in distilled water, 500 cc. of Dextran, 300 mgm. of Solu-Cortef, 14 cc. of Levophed, and 20 cc. of 20 per cent calcium gluconate.

At 3:00 p.m. that day there was no bleeding from a Foley catheter in the bladder, but only 5 cc. of urine were obtainable. The patient's systolic blood pressure was 108 mm.

Her hospital course for the next 5 days was marked by anuria and oliguria, with the urinary output varying from zero to 100 cc. a day. On August 27 the serum potassium rose to 6.1 mEq. per liter and the blood urea nitrogen to 50 mg. per 100 cc. In view of these changes and the lack of urinary output, the patient was transferred to another hospital where an artificial kidney was available if necessary.

At the other institution she continued to be oliguric for another 7 days, but the electrolytes were controlled by ion exchange resins. At that time diuresis of enormous proportions occurred, and it was difficult to control the electrolyte balance. The patient, however, made a good recovery and was discharged in good condition.

When last seen by her family physician in October 1957, she was having normal menstrual periods and did not seem to have suffered any ill effects from her near catastrophic experience.

Discussion

The first case represents the so-called dead fetus syndrome, in which the fetus was probably dead in utero for a period of 3 to 4 weeks.

It is impossible to say at this time whether the fibrinogen level of this patient's blood had been decreasing prior to the onset of labor, or if the afibrinogenemia was due to the forcing of macerated tissue and tissue juices into the maternal circulation during labor. At that time, the significance of a dead fetus was not generally known and the tendency toward afibrinogenemia was not thought of by the average physician.

The measures taken in the delivery room to halt the hemorrhage, although rightly described at the time as "heroic," were by present standards inadequate. Serial fibrinogen levels or clotting times done at the time the patient was suspected of having a dead fetus in utero might have revealed a change and given some warning to the physicians. If afibrinogenemia had been well known at the time and fibrinogen had been available, the condition would probably have responded rapidly. Thus is illustrated the progress in medical science.

The second case represents tumultuous labor in a primigravida, evidenced by the fact that dilatation progressed from 4 cm. to complete in 2½ hours, and, even more significant, the station changed from minus 3 to plus 4 in 50 minutes.

The administration of the caudal analgesia was uneventful, no cerebrospinal fluid or blood was obtained on aspiration, and the sciatic sign was noted. Spinal injection of Metycaine will cause paralysis of the auxiliary muscles that aid in respiration and finally paralysis of the diaphragm, not the labored respiration that resulted in this case nor the immediate cyanosis and coma. We ignored the fact that when the patient was turned on her side for preparation for caudal injection she stated that she was going to die.

It is to be noted that moving the patient from the labor bed to the delivery table resulted in a convulsion and cyanosis, probably caused by another embolism. After recovery from this episode, placing her in Trendelenburg position was immediately followed by coma and cyanosis.

Significant also is the brief recovery of consciousness, during which the patient complained of pain in the chest.

The bleeding from the urethra and the hematoma formation at the episiotomy site were noted, but their importance was not realized. The time element is of interest: only 45 minutes had elapsed from the time of the initial embolus and time when the patient's blood was failing to clot.

The patient responded rapidly to the administration of fibrinogen, and the bleeding ceased.

Following the prolonged period of shock, anuria developed as a result of lower nephron nephrosis and persisted for 12 days, with eventual recovery of urinary function.

When last seen 15 months later, the patient was in good health with no complaints.

Comment

In reviewing the record of Case 2, it is seen that the patient rallied from the initial shock of the amniotic embolism, and had a new episode with convulsion and cyanosis upon being moved from labor bed to delivery table. She again recovered consciousness, but when shock due to blood loss ensued she had another period of cyanosis and coma upon being placed in Trendelenburg position.

We have not been able to find any reference to this aspect of the disease in any of the literature reviewed. It seems likely that since the deposition of fibrin and meconium is a physical entity, it may be influenced by the position of the patient. Sudden movement may cause further embolization to the lungs or brain, as may lowering the patient's head and thorax.

We propose that part of the treatment of amniotic fluid embolism consist of keeping the patient in low Fowler position and moving her as little as possible, and gently when necessary.

Summary

Two cases of afibrinogenemia have been presented.

The history, incidence, and causes of the disease have been discussed with a brief review of the coagulation mechanism of the blood included.

The treatment of afibrinogenemia has been presented, including a new principle hitherto unreported in the literature.

300 Spruce St.

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BALLISTOCARDIOGRAPHY

as an adjunct in clinical cardiology

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ANY NEW MODALITY presented to the medical profession is at once limited by its applicability and the reproducibility of its results. When these limitations are clearly understood, the modality can then become a source of knowledge and can greatly enhance the diagnostic armamentarium.

About three quarters of a century ago Gordon inscribed the first graphic record of oscillations of the human body. To such records Starr gave the name of ballistocardiogram.[1] The ballistocardiogram is a graphic representation of the forces within the heart and the vascular bed. These are physical forces as opposed to the electrical forces measured with the electrocardiograph. The information obtained by the ballistocardiograph would therefore report the mechanical efficiency of the heart, and this information is of vast importance as a sensitive index of cardiac function. We must realize that we are measuring not only the direct cardiac vectors created by the beating heart but also the pulmonary forces inscribed by inspiration and expiration.

I use the ballistocardiogram for evaluation of the following three main groups of patients in my office practice: (1) Those with negative electrocardiographic findings and subjective complaints suggesting coronary artery disease (it is in this group that the value of detecting the prodromal stage of acute myocardial infarction is of greatest benefit); (2) those who, following an acute myocardial infarction, desire appraisal of the functional recovery of the heart muscle; and (3) those with normal electrocardiograms and a history of a previous myocardial infarction. In this group objective documentation of the old myocardial infarction is desirable, especially when records made during the acute phase are not available. The above grouping is by no means an inclusive index of uses of the ballistocardiograph in evaluation of the cardiac patient, but it is the more popular application.

I have observed several ballistocardiographic tracings classified under the nomenclature of Brown[2] as grade 0-1 that on serial tracings revealed a progressive deterioration of pattern. These patients, for the most part, had subjective complaints of vague chest pain in the precordial area (usually after exertion), occasional dyspnea on exertion, and several other minor complaints. We have all been confronted at one time or another with such a case in which normal electrocardiographic patterns were found. One fact worthy of mention is that the Master two-step test is positive in only a small percentage of these patients. Careful follow-up has disclosed that a large percentage of patients with progressive deterioration of the ballistocardiographic pattern have developed myocardial infarction.

The tracing in Figure 1 reveals a deterioration of pattern in a 38-year-old man whose chief complaint was precordial pain related to exertion. The initial tracing (Fig. 1a) was taken during a routine examination when the patient had no subjective complaints referable to the cardiovascular system. The increase in cardiac output indicated in the second tracing is, I believe, a compensatory mechanism of the heart to maintain homeostasis. The deterioration of the ballistocardiographic pattern associated with precoronary thrombosis was also observed by Dock, Rosenblatt, and the Mandelbaums,[1,3,4] as well as others. This finding suggests a more thorough evaluation of patients in the attempt to seek out individuals disposed to coronary heart disease.

Myocardial infarction is a pathologic condition resulting from occlusion of a coronary artery which produces coagulation necrosis of the area no longer supplied by the now occluded artery. The mechanism by which the occlusion occurs is poorly understood at best. I will not attempt in this discussion to outline the numerous theories of pathologic physiology that have been postulated as causative factors, other than to mention that there are two main schools of thought; one considers the process as extracorporeal malfunction and the other as intracorporeal malfunction.

Following a myocardial infarction, the question which arises in the minds of the patient, the patient's family, the doctor, and the insurance company is: When can the patient be expected to return to work without fear of a relapse? As a rule, this question has received one of two answers. The cautious physician has stated that he would allow the patient to return to work after a prolonged rest and after return to normal of the electrocardiogram, sedimentation rate, C-reactive protein determinations, leukocyte counts, temperature, and subjective status, and the "clairvoyant" physician has told the patient that in a month he should be able to return to work without anticipating difficulty. This empiric prognostic advice has been based on signs and results of tests that were not always true indicators of the patient's ability to perform labor requiring varying exertions since the cardiologist lacked a sensitive index of cardiac mechanical efficiency. Ballistocardiography is a means toward that end. While not the ultimate in this regard, it is nevertheless a valuable adjunct in clinical appraisal of the postmyocardial infarction status of the patient relative to the degree of functional recovery of the heart muscle.

In determination of the patient's status, the serial ballistocardiographic changes is followed in much the

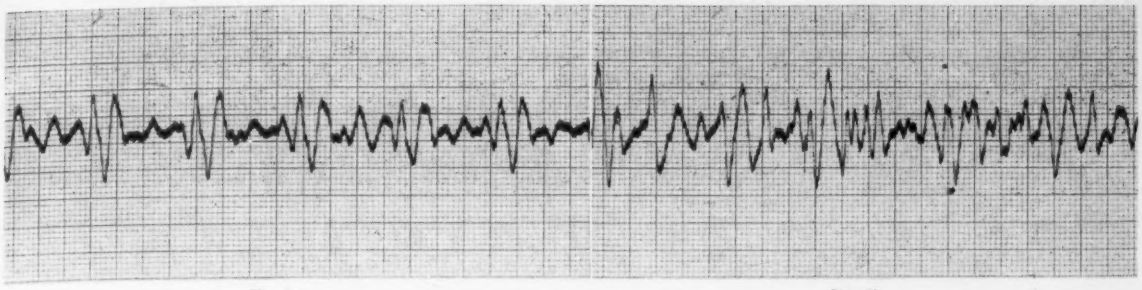


Fig. 1a

Fig. 1b

Fig. 1a. Initial acceleration tracing shows repetitive complexes and minimal respiratory variation. Fig. 1b. Four months later, the patient complained of precordial pain on exertion, but ECG and Master two-step findings were normal. The following month the patient suffered an anteroseptal myocardial infarction. Note the loss of repetitive complexes with deterioration of pattern.

same way as serial electrocardiographic changes. We have noted that progressive deterioration of the ballistocardiogram is an unfavorable prognostic sign indicating poor functional recovery. Conversely, improvement in the serial ballistocardiographic tracings following a myocardial infarction indicates a more favorable prognosis. Figure 2 illustrates a good functional recovery of the heart muscle following posterior myocardial infarction.

Can the patient referred for cardiovascular evaluation after myocardial infarction be told to return to work involving moderate exertion without fear of ensuing cardiac difficulty if he evidences a normal ballistocardiographic tracing at rest? By utilizing the ballistocardiograph after exercise and a cigarette test (which consists in having the patient smoke a cigarette following a basal ballistocardiographic trace and then repeating the tracing) the functional activity of that individual's heart in response to stress can be evaluated. If deterioration of pattern is observed, the patient should be instructed to refrain from hard labor and should confine his activities to less stressful situations.

The tracings in Figure 3 indicate the importance of utilizing an exercise ballistocardiogram as well as a cigarette test in the complete evaluation of the patient who has suffered a myocardial infarction. We note a deterioration of pattern with exercise as well as after the cigarette. The popular question of whether or not to allow a patient to smoke after myocardial infarction could reasonably well be answered by making these tests. In my own practice, if a patient does not reveal ballistocardiographic deterioration after the above tests, I allow him to smoke in moderation. If there is obvious deterioration in ballistic pattern following cigarettes, I withdraw all smoking privileges. The visual tracing shown to the patient helps to convince him of the necessity for abstinence, and he does not feel that I am treating him empirically. The deterioration of pattern following exercise as well indicates that this individual cannot maintain a satisfactory functional state of the heart muscle following stress and serves as a guide for restricting physical activities.

Discussion

Clinical angina pectoris has also been evaluated by ballistocardiographic means. It is worthy to note that 200 of 224 patients with clinical angina pectoris observed by Mandelbaum and Mandelbaum[4,5] had abnormal ballistocardiograms. In patients with angina pectoris following coronary occlusion, Moser and associates[6] noted a normal ballistocardiogram in only 7 per cent. Taymor and associates[7] noted that of 75 patients with angina pectoris who had normal resting electrocardiograms and positive Master two-step tests, 83 per cent had abnormal resting ballistocardiograms, and that after exercise the tracings became abnormal in an additional 10 per cent.

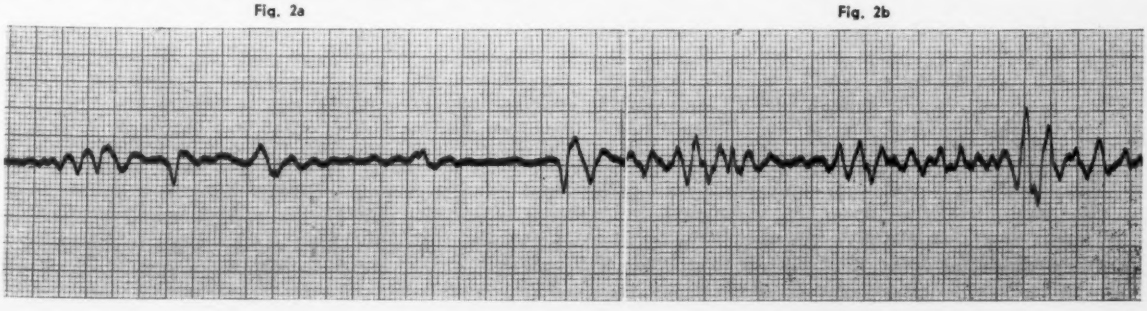
My own observations based on ballistocardiographic evaluation have correlated quite well with the findings of others in regard to coronary artery disease and myocardial damage. Though I utilize serum transaminase determinations as an aid in diagnosing the so-called "silent" infarction, I recognize its pitfalls and use ballistocardiography as an adjunct in making the correct diagnosis.

It has been noted that several ballistocardiographic traces that contained very large complexes and appeared abnormal in configuration were of normal configuration after reduction of the standardization by one half. Such a technical error may result in misinterpretation of those traces that display increased vectorial forces. The most significant limitation of ballistocardiography seems to be the effect of aging. The myocardial function of

Fig. 2a. This acceleration tracing reveals a grade 4 pattern following myocardial infarction in a 47-year-old male. Fig. 2b. In this tracing taken 3 months after the acute episode a fairly good repetitive graph is seen. Although this tracing is grade 1, it represents a satisfactory conversion and improved function of the heart muscle.

Fig. 2a

Fig. 2b



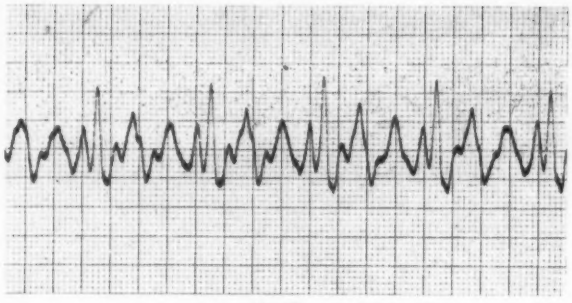


Fig. 3a

Fig. 3a. Tracing on a 40-year-old male patient with a history of anterior wall myocardial infarction 2 years before. Abnormal K waves are present, although the tracing indicates satisfactory recovery. Fig. 3b. Three minutes after smoking a cigarette, deterioration in complexes is seen, indicating altered function of the heart muscle. Fig. 3c. Following exercise, increased cardiac output during inspiration is again seen although the general pattern is one of deterioration.

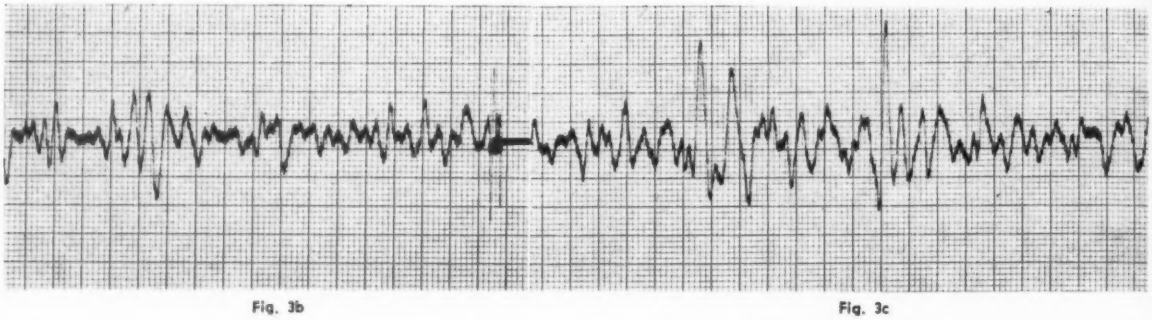


Fig. 3b

Fig. 3c

the older age groups naturally declines, and this decrease in functional status is recorded by the ballistocardiograph. Abnormal records of patients under the age of 50, however, do offer objective evidence of coronary artery disease if there is no abnormality noted on physical examination, cardiac fluoroscopy, and electrocardiography.

Summary

In dealing with evaluation of cardiovascular diseases, the cardiologist faces numerous obstacles which cause him to rely on whatever information he can compile for achieving an accurate diagnosis and accurate appraisal of the patient. Ballistocardiography is not intended to be a panacea for cardiac problems, nor is it likely to replace the standard diagnostic aids currently in vogue. It is merely an additional test that discloses information not obtainable by any other means at this time. Its value lies in the fact that it is a useful adjunct in appraising the functional status of the heart and that it affords a comparative visual study of the dynamics involved. Now that we have a practical ballistocardiographic instrument[8] for the measurement of those forces, there will probably be many additional uses for it in the future.

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Research, serendipity, and orthopedic surgery

► Serendipity, according to Webster's unabridged dictionary, is "the gift of finding valuable or agreeable things not sought for." Many of the most valuable scientific discoveries have been coincidental, if not accidental. . . .

The gift of finding valuable or agreeable things not sought for, and the good judgment required to recognize and make use of these things for the benefit of orthopedic patients, are important. But the rewards of basic scientific research can be much greater than the rewards of these. We may not be able to take an active part in such investigative work. We can and should encourage our more talented students, interns, and residents to learn the disciplines and techniques of fundamental basic research, and we can and each one of us should give generously to provide the funds needed by research foundations in this field.—Edward L. Compere, M.D., *Journal of the American Medical Association*, December 21, 1957.

New LABORATORY AIDS to DIAGNOSIS: Their interpretations*

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ANY ATTEMPT to discuss a subject of this scope in a short paper places the author in the difficult position of deciding what he thinks is of most importance in recent developments. Still worse, his assignment may lead him into one of the faults so luminously described by W. C. Davison in "The Compleat Pediatrician."[1]

However, I would like to review briefly some of the more recent laboratory developments in the field of pediatrics. None of these tests is beyond the reach of the average hospital laboratory, and the technics for carrying out the procedures are readily available in most recent standard laboratory texts and journals. It behooves us all to remember that, as yet, office and bedside diagnostic impressions of the sick child, in connection with a well audited history, still comprise the most important phase of diagnosis for most successful pediatricians.

There are one or two conditions that should at all times be in the mind of those actively engaged in the care of newborn infants. These two disorders fall under the general classification of diseases of inborn errors of metabolism. Unfortunately, to date, only two or three such metabolic errors are amenable to therapy, and the pediatrician must shoulder the great responsibility for the early diagnosis and treatment of at least two of these diseases.

Phenylketonuria

The first of these diseases is phenylketonuria or phenylpyruvic oligophrenia which appears in early infancy and is inherited as a mendelian recessive characteristic. The most striking manifestation of this disorder is severe mental deficiency; most patients fall in the classification of idiots with intelligence levels below 20 and the remainder are mostly imbeciles, with a rare patient possessing higher grade mentality.[2] The metabolic error in phenylketonuria lies in the inability of certain enzyme systems to convert phenylalanine completely to tyrosine. The resulting disturbance in mentality is probably the result of cerebral intoxication by accumulated phenylalanine or one or more of its breakdown products. The laboratory aid to diagnosis is a very simple test: to about 5 cc. of freshly voided urine acidified with dilute sulfuric acid, a few drops of 5 per cent ferric chloride solution are added. If phenylpyruvic acid is present a deep bluish-green color that is diagnostic appears immediately. It has been noted recently by some investigators that the problem may exist at birth or in the first few weeks of life, without demonstrable phenylpyruvic acid in the urine. This is probably because of the rather high renal threshold for phenylpyruvic acid in the newborn, and in these cases serum tests for phenylalanine levels should be performed if the index of suspicion is high.

The value of early diagnosis in these infants is obvious, and administration of a phenylalanine deficient protein hydrolysate in most cases has reversed the cerebral manifestations, at least to some degree. This preparation is now available commercially under the name of Ketonil, and it is not too troublesome for the mother to prepare. In our own institution we are currently performing the phenylpyruvic acid test on all newborn infants suspected of mental retardation or exhibiting convulsive seizures, and in the future hope to perform it routinely on all newborn infants. On the pediatric floor it is routine in all cases of seizures, especially in blond, blue-eyed children. Other symptoms of phenylketonuria, or Föllings disease, include convulsions, dyskinesia, and pigment anomalies.

Congenital galactosemia

The second inborn error of metabolism that is readily diagnosed by rather simple laboratory tests is congenital galactosemia. Perhaps a better term would be congenital hypergalactosemia, since all normal individuals carry small amounts of galactose in their serum. This condition is characterized by galactosuria, aminoaciduria, albuminuria, gastrointestinal disturbances, increased NPN, cataracts, failure to gain weight, enlargement and eventual cirrhosis of the liver, jaundice, slight enlargement of the spleen, anemia, and osteoporosis. The condition exists because of inability of the liver to convert galactose to glycogen. When the blood galactose is elevated to a level that exceeds the capacity of the renal tubules to reabsorb it from the glomerular filtrate, galactose appears in the urine. It is imperative that this condition be diagnosed as early as possible in infancy in order that brain, eye, and liver damage not become irreversible.

The laboratory aids to diagnosis, although not too recent in this case, are determination of blood galactose

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Perhaps routine testing of the urine of all newborn is the only answer to the detection of galactosemia and subsequently the highest salvage rate for these unfortunate babies

level and the galactose tolerance test in conjunction with a glucose tolerance test in any infant with a reducing substance in his urine. This is especially true in breast-fed infants, because of the higher lactose content of breast milk. Galactose, unlike glucose, is not fermented by yeast. The blood sugar is determined before and after yeast fermentation, after which the amount that each sugar contributes to the total blood sugar can be separated.

Another laboratory aid is the phenylhydrazine test that identifies the nonfermentable galactose sugar and yields typical galactose crystals. Further examination by the mucic acid test with nitric acid will result in crystals characteristic of either galactose or lactose, after which lactose is ruled out by a yellow reaction with the Rubner test. It should be stressed, however, that the value of simple screening tests of urine in both phenylketonuria and galactosemia lies in their application soon after birth. Perhaps routine testing of the urine of all newborns is the only final answer to the detection of the greater percentage of cases and subsequently the highest salvage rate for these unfortunate babies.

There is a very simple newly available test that has great practical value in the diagnosis of galactosemia.[3] The specific enzyme, glucose oxidase, has been incorporated in indicator papers distributed as Tes-Tape and as Clinistix. These products are primarily for qualitative testing for urinary glucose in the management of diabetes, but are also applicable in quick differential diagnosis of other types of melituria. When dipped in urine the test paper turns blue in the presence of glucose but remains unchanged in color if no glucose is present. The test is negative for all reducing sugars other than glucose. Subsequently, if a galactosemic child is hospitalized because sugar has been found in the urine, the attending physician, by means of this simple test, is quickly able to differentiate diabetes mellitus from possible galactosemia or fructosuria.

Mucoviscidosis

There are two more recent laboratory aids to diagnosis in an often overlooked disease that was formerly termed "cystic fibrosis of the pancreas" but is now known by a new and more descriptive term "mucoviscidosis." Routine screening tests of children with this disorder by such methods as determination of trypsin activity in the stool (on gelatin film) and stool fat and starch determination, have given much unreliable information and difficulty in interpretation, and frequent laboratory error has been commonplace. Duodenal drainage, which is more accurate, is a prolonged, tedious, and cumbersome procedure to both patient and physician, and in many cases much technical difficulty has been met. However, now two new screening tests available have helped greatly to facilitate the early diagnosis of this abnormality of mucus-secreting glands.

The first test depends on the elevation of sodium and chloride in the patient's sweat; the chloride determination is made in most laboratories by the method of Schales and Schales.[4] The clinical determination of electrolytes in sweat is not difficult by this method, but the actual collection of the sweat can become quite a problem. Many methods have been outlined in the past 2 years for recovery of specimens, and we have tried most with varying degrees of success. Currently we are using the method in which the child is wrapped from the axilla to the pubes in commercially available Saran wrap, clothed in a snow suit, and placed in a room with a temperature controlled at 88 to 90 F. for 45 minutes. He is offered water frequently during the test. At the end of this time, the Saran wrap is slowly removed by the nurse while the physician or laboratory technician aspirates the available sweat from the skin with a tuberculin syringe or Pasteur pipette. A nurse must attend the child constantly while he is in the "hot room" because of the ever-present danger of heat exhaustion and rapid loss of electrolytes to which these children are unusually susceptible.

Any infant or child admitted to our emergency department with a clinical diagnosis of acute heat prostration is, if possible, studied as a candidate for mucoviscidosis. With the method described above, we have been able to recover from 3 to 6 cc. of sweat, which is more than adequate for the laboratory determination of both sodium and chloride. The sweat should be centrifuged for about 3 minutes to clear it of epithelial and undissolved debris. Following this, 1:100 and 1:200 dilutions are made and analyzed for sodium with the flame photometer. The average range for sodium concentration by this method is between 100 and 200 mEq. per liter with a mean of 165 mEq. in patients with fibrocystic disease. In contrast, sodium concentrations in normal subjects usually range between 1.1 and 100.5 mEq. per liter with a mean of 37 mEq. Chloride analysis usually yields a range of 103.1 to 210 mEq. per liter with a mean of 165 mEq. per liter in fibrocystic disease as compared with a range of 6.1 to 110.8 mEq. per liter with a mean of 37 mEq. per liter in the control group.

Another method[5] which may be used for sweat collection is to bathe the child with soap and water and after he is thoroughly rinsed and dried to place him nude on a plastic sheet and subject him to moderate thermal stimulus for 20 to 40 minutes. With this method sweat can be collected with a tuberculin syringe from the surface of the sheet and the back of the patient. In infants under 6 months of age the thermal stimulus is conveniently achieved by the use of an Isolette set at 35 C. and 100 per cent humidity. In older infants and children a heat cradle with a 100-watt bulb fastened to the top is placed over the trunk of the subject with a blanket over the entire apparatus. This method, however, has the disadvantage that the children frequently contaminate the available sweat with urine

and it becomes necessary to repeat the procedure. For practical purposes, the determination of chloride concentration of sweat alone is an adequate screening test in most cases of mucoviscidosis.

A second screening test for mucoviscidosis utilizes analysis of saliva or urine for iodine content after the oral administration of Lipiodol.[6] It is a known fact that children with this disease have an impaired ability to secrete oil-linked iodine by these routes. In the saliva test, the Lipiodol is mixed with honey and administered orally in doses of 0.5 ml. per kg. of body weight with a minimal dose of 4 ml. and a maximal dose of 10 ml. Saliva is collected 1, 2, 3, and 4 hours later either by having the child expectorate into a clean test tube or by aspiration with a rubber bulb syringe. As little as 0.5 cc. per specimen is adequate. Serial titers are made up to a titer of 1:64, using distilled water as a diluting agent. To each tube 5 drops of eighth-normal nitric acid and 3 drops of 1 per cent starch solution are added. After 5 minutes a positive reaction for iodine is indicated by blue or purple.

Of 11 children with cystic fibrosis of the pancreas tested in one institution, none exhibited iodine in the saliva in any of the 4 hourly specimens, except for one in whom a positive reaction was obtained in a 1:2 dilution at 4 hours. In contrast, every one of 30 control children who showed no evidence of the disease gave a positive titer of at least 1:8 at 3 hours, and at 4 hours most of the readings were 1:16 or 1:32. In the urine test,[7] the first specimen of urine is collected after 12 to 18 hours. Serial two-fold dilutions of 0.5 ml. of each specimen are made with 0.5 ml. of water in a series of six tubes. To each tube of diluted urine are added 5 drops of eighth-normal nitric acid, which liberates free iodine. Iodine is detected by the further addition of 3 drops of 1 per cent suspension of starch. In children with normal digestion and absorption of fat, free iodine will be found in the first sample in a dilution of 1:8 to 1:32. Failure to demonstrate iodine indicates a disturbance of fat absorption, but is not specific for fibrocystic disease of the pancreas. Following this test, it should be noted, serum values for protein-bound iodine may be abnormally high for several weeks.

Last, there is the silver nitrate impregnation test[8] or, as it has been rather loosely termed, the "salty hand" test as a diagnostic aid in the screening of children with mucoviscidosis. There are a few interesting signs concerning the problem of sweat in these infants and children. Many mothers report noticing the salty taste of the baby's sweat when kissing the baby. Schwachman and Gahm[8] report cases in which salt crystals have been noted on the face and forehead. A certain number of these children also have a marked craving for salt, especially in hot weather, and it has been postulated that abnormal function of the eccrine glands exists and could be detected by histologic examination of the skin. However, most investigators have been unable to find a histologic distinction between normal sweat glands and those of patients with this disease.

In the silver nitrate impregnation test, the infant's or child's hand should be washed rather vigorously with green soap and dried thoroughly. An imprint of the hand is then made on silver nitrate impregnated agar in a Petri dish. The hand is briefly held in place to obtain a visible impression. The test medium is made up as follows: 25 grams agar are dissolved in 500 ml. of boiling water. After the agar is melted, 4.2 grams silver nitrate and 2.5 grams potassium chromate are added and the mixture is stirred thoroughly. The red liquid is poured into a Petri dish and permitted to harden. The plates may be stored in a refrigerator or in a plastic bag. Following the initial hand impression, the hand is washed and dried a second time, and in 20 minutes the test may be compared with imprints made after immersing the hand in a known concentration of sodium chloride.

Interpretation of the test is as follows: If the chloride concentration exceeds 250 mEq. per liter, intense whitish-yellow discoloration of the plate appears immediately. Little or no discoloration occurs if chloride concentration is less than 60 mEq. per liter. If the patient's sweat discolors the plate only slightly cystic fibrosis is unlikely. Strong discoloration from a child with clinical signs and symptoms of mucoviscidosis usually indicates the possibility of its presence. Schwachman and Gahm[8] say, however, that psychic stimuli, environmental conditions, diet, renal function, adrenal activity, and state of hydration influence the salt content of sweat. Further investigation is needed with these methods of determination.

Liver function tests

Brief discussion of another group of laboratory tests is pertinent at this point. They are especially valuable in determining the return of normal liver function following acute hepatitis, homologous serum hepatitis, and in certain selected cases of reversible cirrhosis of the liver. The diagnostic value of the activity of malic dehydrogenase, phosphohexose isomerase, and serum glutamic oxalacetic transaminase, more commonly termed serum transaminase, in the detection of liver disease parallels the value of the sedimentation rate, C-reactive protein determination, and the mucoprotein tyrosine levels as evidence of cellular recovery in rheumatic fever. These enzyme titers are also delicate evidence of progression and recovery in coronary heart disease, but pediatricians are little interested in this application.

All of these tests can be performed in the average well-equipped hospital laboratory by spectrophotometric determination as devised by Karmen,[9] Bodansky,[10] and

Any infant or child admitted to our emergency department with a clinical diagnosis of acute heat prostration is, if possible, studied as a candidate for mucoviscidosis

Bing and coworkers.[11] They should be utilized as serial determinations, especially during the recovery stage of any reversible hepatic disorder and selected cardiac disorders. The cessation of active rheumatic carditis, so commonly seen in children, is also another valuable indication for the use of these tests, especially the serum transaminase test. Briefly, increased activity of any of these enzyme systems seems to depend directly on hepatocellular necrosis. Theoretically, therefore, a drop in serum activity should imply that either cardiac or hepatic cellular regeneration is taking place and that these enzymes with which both heart and liver are so richly endowed are again being stored. Normal serum transaminase values have been found to range from 5 to 40 units, and the usual range in viral hepatitis is from 540 to 1,900 units of activity.[9] The average range in biliary cirrhosis is from 57 to 330 units.[9] We have recently studied an infant with obstructive biliary disease due to congenital atresia of the extrahepatic biliary apparatus in whom the transaminase activity was 425 units. The normal average of malic dehydrogenase is roughly 80 units, with a standard deviation of 20. In both cardiac and hepatic disease this enzyme has been known to reach a level of 1,290 units.[11] Isomerase activity has an average range of 10 to 20 units in normal health. It may rise as high as 150 units in both infectious and homologous serum hepatitis and show somewhat lower values in rheumatic carditis.

. . . the correct diagnosis of rheumatic fever continues to challenge the diagnostic acumen

Another interesting application of these tests would be to standardize their values in the newborn infant and subsequently attempt to discover their behavior and prognostic significance in the infant with erythroblastosis with or without inspissated bile syndrome, neonatal hepatitis, and other pathologic conditions of the liver peculiar to the infant at birth. Further study is also indicated to attempt to correlate this profile of enzymes with that of the better known liver function tests such as cephalin-cholesterol flocculation, thymol, turbidity, sedimentation rate, and prothrombin time. Another recent aid to laboratory diagnosis of liver disease is known as the B_{12} excretion or B_{12} loading test[12] and is a rather sensitive index of the ability of the liver to store B_{12} in hepatitis or cirrhosis. The normal liver should excrete approximately 25 to 40 mcg. of B_{12} after a load dose of 50 mcg. During the active phase of hepatic disease the liver loses its ability to excrete the vitamin, and most individuals tested so far have excreted less than 10 mcg. of B_{12} at the end of 1 hour. The exact mechanism of this hepatic phenomenon is unknown at this time, but excretion of the load dose is helpful in prognosticating liver disease in the individual considered convalescent or clinically normal by such signs as absence of icterus, reduction of liver size, and increased stool bile.

Rheumatic fever

Although rheumatic fever is on a gradual decline in most areas throughout the United States, and especially since many cases are now mild, unrecognized, or atypical—whatever that word implies—the correct diagnosis continues to challenge one's diagnostic acumen despite the help of modern laboratory adjuncts. Here again we have a situation analogous to the recrudescent phase of acute hepatitis when the patient is anicteric. Just when is the rheumatic child well, and when can he be permitted greatest activity? In recent years we have all become acquainted with the antistreptolysin-O titer and the antihyaluronidase titer. Next C-reactive protein determination came into use, giving most clinicians a more effective tool for diagnosis, activity determination, and prognosis during the convalescent stage. However, as often happens in the field of medicine, the C-reactive protein determination has failed to live up completely to our high expectations. In some cases it has been falsely positive in unrelated transient disease of no serious consequence, and in other cases it has remained normal during the still active stages of rheumatic fever.

Recently, another acute phase reactant known as the mucoprotein tyrosine determination has come into more general use. This test was first described by Winzler and Devor[13] in 1948 but was little used until 1953 when clinicians in larger centers began to employ it as both a diagnostic tool and a sensitive index in determining the activity status of acute rheumatic fever. H and M Chemical Company of Santa Monica, California, supplies the tyrosine standards for this determination, and the rest of the test is simply performed with phenol reagent, 12.5 per cent sodium carbonate, 5 per cent phosphotungstic acid, and 0.75 per cent normal perchloric acid. The method and details of the test are quite simple and the results can usually be obtained at the end of 1 hour with a density reading on the flame photometer. It is a simple and well-tolerated test in children, as only 1 cc. of serum is needed to obtain a reading. The mean normals for the mucoprotein tyrosine average 3.3 mg. per 100 cc. with a range of 1.8 to 4.3. It has been shown by previous studies that the sedimentation rate parallels the serum mucoprotein tyrosine in most disorders with the exception of cardiac failure and the nephrotic syndrome, and in patients who are receiving steroid therapy. In isolated streptococcal disease not associated with the symptom complex of rheumatic fever, the mucoprotein tyrosine is seldom elevated longer than 25 to 30 days, whereas in acute rheumatic fever the mucoprotein tyrosine seldom returns to normal in less than 3 months. Many patients have elevated values for mucoprotein tyrosine without evidence of C-reactive protein and vice versa. As a result of this observation it is now the general feeling that the results of C-reactive protein tests are less predictable than those for mucoprotein tyrosine and therefore probably of less value. The mucoprotein tyrosine level is also a very reliable and sensitive index in the diagnosis of acute glomerulonephritis.

Another problem that is sometimes baffling to the clinician is differentiating mild rheumatic fever from acute rheumatoid arthritis in the child. In these cases the use of the mucoprotein tyrosine test in conjunction with the antistreptolysin-O titer, which has been found to be consistently normal in most cases of rheumatoid arthritis studied to date, offers the clinician relatively

accurate laboratory aid for differentiation of the two conditions. Any reading above 4.5 mg. per 100 cc. of mucoprotein tyrosine is to be considered abnormal, and in these cases intensive study should be undertaken to uncover further evidence of the rheumatic complex.[14]

Summary

A few of the more recent and interesting laboratory aids to diagnosis have been discussed and their technics of performance and clinical interpretation briefly given. Those presented are but a few of the battery of laboratory determinations that aid the pediatrician of today. There are many others, such as paper chromatography or electrophoresis of plasma proteins, use of isotopes in the diagnosis of selected pediatric pathologic conditions, recent radiologic adjuncts such as cinefluoroscopy, and recent diagnostic advancements in the field of microbiology, that it would certainly be of value to discuss if space permitted. In our own institution we are utilizing paper chromatography to a greater extent with each passing month, and it is gratifying to know that many of the clinical puzzles of pediatric practice in the past, especially those congenital abnormalities associated with altered or abnormal protein and mineral metabolism, can now be understood and classified with relative accuracy. One of our staff is now licensed for the use of isotopes, and it is hoped that many of the more obscure hematologic problems, especially those in which tagged iron and chromium can be used as diagnostic tools, will become less complicated and therefore more thoroughly understood, with subsequent improvement in therapeutics.

I will close on a somewhat paradoxical note by reminding all of us in this day of exotic diseases that despite increased number and precision of laboratory tests, final diagnosis still rests on evaluation of the mid-diastolic rumble, the suggestive, icteric sclera, the slightly noticeable precordial thrust of the thorax, and the visible gastric peristalsis of the fretful baby.

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CASE REPORTS

Hemiaplasia of the thyroid gland*

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Some time ago, at the Hospitals of the Philadelphia College of Osteopathy, a 53-year-old woman was operated upon for an adenoma of the left lobe of the thyroid gland. At the time of operation, it was noted that the right lobe, isthmus, and pyramidal lobe of the gland were absent. Examination of the neck did not reveal any aberrant thyroid tissue. Aplasia of the right lobe is a condition rarely reported in medical literature; the average general surgeon has probably never seen it. A check of medical literature reveals that only 31 cases have ever been reported.

To the surgeon who is performing thyroid surgery, the possibility of operating in the presence of hemiaplasia is important because of the danger of inadvertently removing the patient's entire thyroid gland. This danger is further increased by the fact that absence of the left lobe is seven times as frequent as absence of the right, and it seems to be a universal practice in thyroid surgery to start the operative procedure on the right side. Therefore, the surgeon might detach the blood supply to the right lobe before becoming aware that the left lobe was not present.[1]

Total aplasia of the thyroid gland is believed to be incompatible with life; hemiaplasia, however, is compatible with life in the fetus and infant. There are two basic pathologic conditions where absence of one lobe of the thyroid gland exists: one is the acquired type, which is degenerative rather than aplastic; and the other is the congenital hemiaplastic form. The acquired type is the result of destruction of one lobe of the gland in the fetal period or early infancy from cystic degeneration, infection, or avascular necrosis. In these in-

*This paper was submitted to the faculty of Philadelphia College of Osteopathy in partial fulfillment of the requirements for the degree of Master of Science.

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stances there is usually evidence to show that a lobe has existed in some form.

Congenital hemiaplasia has been attributed to a developmental failure of the contributions from the ultimobrachial bodies.[1] These bodies are the embryologic origins of the lateral lobes. Another theory is that it is due to failure of the median tract to bifurcate and develop into the two lateral lobes.[2]

Some patients with the congenital or aplastic variety have been found at the time of surgery to have thyrogenic cysts at the site of the aplastic lobe. In the lobe which is present, there have been found such pathologic entities as adenomas and cysts with immature fetal-type cells.[3] The case history which is presented in this paper is one of a fetal adenoma in the left lobe of the thyroid gland.

Most cases of hemiaplasia are not diagnosed as such until surgery. Physical examination leads to a correct diagnosis in some cases, but unless the abnormality in contour is detectable by palpation, the condition is missed. The lobe which is present often lies past the midline and a cyst or adenoma on one side may further confuse the issue. Hemiaplasia in itself does not give rise to any symptoms.

In cases where there is a suspicion of absence of one lobe, one may seek the aid of the radioactive isotope of iodine, I^{131}. This substance is taken up by the thyroid gland and any aberrant thyroid tissue which may be present. After giving a dose of 100 microcuries by the oral route, a 24-hour period is allowed for maximum concentration in the gland. After the 24-hour period, a Scintiscanner is passed over the surface of the neck, upper thorax, and lower half of the skull. This apparatus picks up the radiation emitted by the I^{131} from the thyroid tissues, utilizing a device similar to a Geiger counter, and traces an outline of these tissues on paper. The thyroid gland and aberrant thyroid tissues are mapped out on the paper in their true anatomic pattern; no other tissues in the body retain I^{131} and emit radiation after this 24-hour waiting period.

Case report

A 53-year-old ambulant white woman was admitted to the hospital with a chief complaint of a dull pain and an enlargement of the left lobe of the thyroid gland. The onset of this complaint was about 4 months prior to this admission. A provisional diagnosis of a solitary adenoma of the left lobe of the thyroid was given; it was also entertained that this could possibly be a malignant lesion. No therapy of any kind had previously been prescribed. It was decided that surgical removal of the tumor mass was in order, not only for relief of the symptoms, but also to prevent the mass from undergoing malignant changes.

The patient was in the euthyroid state, but mild degrees of nervousness had existed for a period of years, and a weight loss of about 10 pounds had occurred in the last year. The latter was presumed to be due to additional work at home. There was no loss of appetite. The past personal and family histories were noncontributory. Fourteen years prior to this admission, the patient had had a panhysterectomy, bilateral salpingo-oophorectomy, appendectomy, and cholecystectomy. Since this operation, she had been in good health except for the present complaint. The histories of the various bodily systems were noncontributary. The patient had never been pregnant.

Physical examination revealed a blood pressure of 140/80, a pulse rate of 88 beats per minute, and a respiratory rate of 16 per minute. The patient weighed 110 pounds and was 5 feet 8 inches in height. A mass which appeared to be approximately 2 cm. in diameter was palpable in the midportion of the left thyroid lobe. The gland was painful to palpation, but was freely movable. No lymphadenopathy was noted anywhere. At the time of the examination, the right thyroid appeared to be normal.

The heart was negative for murmurs or thrills, but there was an accentuation of the second mitral sound. The heart appeared to be of normal size. Physical examination of the head, nervous system, abdomen, thorax, and extremities showed no abnormalities except for the presence of small external hemorrhoids and mild varicosities of both legs.

The presurgical laboratory tests revealed a low specific gravity of the urine and a slight normocytic hypochromic anemia. The blood sedimentation rate was 5 mm. per hour. Blood chemistries were as follows: urea nitrogen, 10.5 mg. per 100 cc.; sugar, 109 mg. per 100 cc.; cholesterol, 227 mg. per 100 cc.; and cholesterol esters, 142 mg. per 100 cc. The protein-bound iodine was 4.4 micrograms per 100 cc., and the patient's basal metabolism test gave a reading of plus four. A presurgical chest roentgenogram revealed nothing abnormal.

This patient was sent to surgery where a resection of the adenoma in the left lobe of the thyroid was performed under general anesthesia. At the time of operation several anatomic abnormalities were noted, including absence of the pyramidal lobe and isthmus of the gland as well as aplasia of the right lobe. The ribbon muscles on the right side of the neck were abnormal in that their attachments were to the tracheal rings rather than to the thyroid cartilage. No aberrant thyroid tissue was found on a thorough inspection of the neck, nor were any thyroglossal cysts found. The left lobe of the gland extended a little past the midline of the neck and was about one and one-half times the size of a normal glandular lobe. The adenoma was found to lie in the center of the lobe and measured about 2 cm. in diameter. Palpation showed no fixation of the gland to the surrounding structures. The lobe did not appear to have undergone malignant change, and the adenoma was benign on gross inspection. The report of the pathologist gave a final diagnosis of an adenoma of the fetal variety.

It has been about a year since this patient was discharged and she has made a normal recovery without any complications. She has complete relief of her previous symptoms and is in good health.

Conclusion

This apparently is a case of congenital hemiaplasia of the thyroid with absence of the pyramidal lobe and the isthmus. Because there were no remnants of a fetal origin or a degenerative process in the absent side, and because of the abnormal muscular attachments, the diagnosis of aplasia seems valid rather than that of a degenerative acquired condition.

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Acknowledgment

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Salmonella osteomyelitis in a patient with sickle cell anemia

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TO DATE 34 CASES of Salmonella osteomyelitis in patients with sickle cell anemia have been reported.[1,2] Special attention has been given to the relationship between the two entities,[3] and Silver and coworkers[2] state that osteomyelitis as a complication of Salmonella infections is comparatively rare, occurring in less than 1 per cent of all cases.

The sickle cell trait (A and S hemoglobins) occurs in approximately 9 per cent of American Negroes,[4] and from 2.5 to 3.8 per cent of these have sickle cell anemia and are homozygous for S hemoglobin.[5]

It is the purpose of this paper to present an additional case of Salmonella osteomyelitis in a patient with abnormal hemoglobin S disease (sickle cell anemia).

Report of case

An 8-year-old Negro boy was admitted to the Still College Clinic on October 16, 1957, with a history of generalized bone pain that had been present since he was 3 years old. Within the past 3 weeks the pain had became quite severe in the area of the knees, and the joints had become swollen and hot. Fever had been constant, reaching a peak of 104 F.

The boy had just been released from another hospital where blood cultures had been positive for Salmonella and x-ray examination had revealed osteomyelitis of the lower extremities. He had been given chloramphenicol.

When examined, his temperature was 100 F. and his pulse rate 112. Both knee joints were swollen and hot, and there was limitation of motion due to pain. The liver was palpable to just above the iliac crest. The spleen was palpable 4 cm. below the costal margin. Findings from the remainder of the examination were not remarkable.

Laboratory examination of the blood showed: erythrocytes 3,340,000; hemoglobin 8.2 grams per 100 cc.; leukocytes 9.950, 53 per cent segmented neutrophils; 41 per cent lymphocytes; 4 per cent eosinophils, and 2 per cent basophils. Studies of a blood smear showed numerous target cells, anisocytosis, and poikilocytosis. The antistreptolysin O titer was 1:320, and agglutination titers for typhoid O and H antigens were 1:640 and 1:1280 respectively. Cultures of blood and feces grew out Salmonella panama. The sickling preparation using 2 per cent sodium bisulfite as a reducing agent was positive, with approximately 100 per cent of the erythrocytes sickled. Electrophoresis of hemoglobin showed 100 per cent hemoglobin S.

X-ray examination (Fig. 1) showed some minor distention of the bony cortex with periosteal reaction of the right fibula. The proximal end of the left tibia showed intermittent distention and periosteal reaction characteristic of osteomyelitis. The fibula on this side was also involved. Minimal striation pattern of the inner table of the skull, characteristic of sickle-cell anemia, was present.

The patient was given chloramphenicol 1,000 mg. orally per day.

On October 25, the patient was examined again. A small mass was present over the inner medial surface of the left leg just below the knee. It was erythematous, warm, and painful. The erythrocyte count was 4,120,000, the hemoglobin 11.75 grams per 100 cc., and the

Fig. 1. X-ray of left tibia and fibula showing areas of bone destruction.

leukocyte count 9,950. The differential count was 41 per cent lymphocytes, 53 per cent segmented neutrophils, 4 per cent eosinophils, and 2 per cent basophils. Blood smear study showed numerous target cells. Cultures of blood and feces were negative for Salmonella panama. X-ray examination revealed some healing of the involved areas of the legs.

The patient was next seen on November 1. The mass on the leg had ruptured and was draining purulent material. Cultures of the material were sterile.

On December 10 the patient appeared markedly improved. The leg pain was gone, and the purulent drainage had ceased. The erythrocyte count was 3,950,000, the hemoglobin 12.05 grams per 100 cc. The leukocyte count was 6,150. The differential count was 54 per cent lymphocytes, 41 per cent segmented neutrophils, 4 per cent eosinophils, and 1 per cent basophils. Blood smear examination showed numerous target cells. Cultures of the blood and feces were negative for Salmonella organisms. Agglutination titers for typhoid O and H antigens were 1:320. X-ray examination (Fig. 2) showed healing of the osteomyelitic lesions.

At no time while the patient has been under our care was there evidence of crisis severe enough to warrant transfusion. His general physical condition appeared good.

Fig. 2. X-ray of left tibia and fibula showing healing of bony lesions after approximately 10 weeks of chloramphenicol therapy.

Discussion

Osteomyelitis is rarely caused by Salmonella.[6-8] It appears more than coincidental that Salmonella osteomyelitis may be present in conjunction with sickle cell anemia. All cases so far reported have occurred in Negro children or young adults.[2]

Salmonella paratyphi B and Salmonella typhimurium accounted for 67 per cent of the infections in one series reported.[1] We have seen no other references to Salmonella panama as the etiologic agent in the combination of osteomyelitis and sickle cell anemia.

The clinical similarity of sickle cell crisis and acute osteomyelitis may confuse the issue. Pain, swelling of the extremities, fever, and leukocytosis may occur in both. Roentgenographically, the bony changes may be indistinguishable.

There are three main types of clinical manifestations of Salmonella infection: gastroenteritis, enteric fevers, and localizing foci in one or more organs accompanied by septicemia. The diagnosis depends upon isolation of the organism from blood, feces, or urine, and/or upon the demonstration of a rise in titer of the specific circulating antibodies for a given organism.

Historically the diagnosis of sickle cell anemia has been based upon demonstration of the sickling of erythrocytes under conditions of reduced oxygen tension, using a coverslip sealed with Vaseline over a drop of blood in saline. In our laboratory the addition of a few drops of the reducing agent, 2 per cent sodium bisulfite, has given excellent results. With the advent of filter-paper electrophoresis, it has been demonstrated that abnormal hemoglobin S disease exists in two varieties: the sickle cell trait and sickle cell anemia.

The sickle cell trait occurs in heterozygous individuals, and the amount of sickle cell hemoglobin varies from 24 to 45 per cent of the total. The remainder is hemoglobin A.

Sickle cell anemia occurs in homozygous individuals, and the bulk of the hemoglobin (60 to 98 per cent) is S. The remainder is fetal hemoglobin (F hemoglobin).[4]

Diagnosis begins with electrophoretic determination of hemoglobin of the patient and his family, since abnormal hemoglobin disease follows the laws of heredity. Chart I shows the inheritance of abnormal hemoglobin S in our patient.

Chart I

Treatment of sickle cell anemia is limited to palliative management. Crisis is treated by multiple transfusions. Splenectomy is indicated only for massive enlargement. The prognosis is poor.[4,5]

Chloramphenicol appears to be the antibiotic of choice in Salmonella osteomyelitis. Therapy over a period of months seems to be the rule, and recovery is slow.

Reasons for the apparent tendency for Salmonella osteomyelitis and sickle cell anemia to occur simultaneously are unknown. It has been postulated that capillary thrombosis in the gastrointestinal tract may predispose to infection of bone.[3] Bone marrow invasion, generalized debility, and/or autosplenectomy may play a part.[1,9,10]

Summary

A case of Salmonella osteomyelitis and abnormal hemoglobin S disease is reported. Diagnosis and treatment are briefly discussed.

720-722 Sixth Ave.

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The treatment of paralyses with hypnosis*

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AT THE DES MOINES Still College, our interest in the therapeutic use of hypnosis was stimulated last year by our success in treating postpoliomyelitis aphagia and a postapoplectic syndrome.

Case 1. A 14-year-old white girl had been under care at the college clinic for problems primarily revolving about her inability to swallow ever since she had bulbar poliomyelitis at the age of 5 years. Nutrition was maintained by tube feeding through a gastrostomy opening in the abdominal wall.

Neurologic examinations had all been negative for demonstrable organic residua following poliomyelitis. The girl had spent two summers at the Rehabilitation Center of Bellevue Hospital in New York City under the auspices of the Infantile Paralysis Foundation. Rehabilitation efforts and psychotherapy had been directed primarily to improving her adaptation to the disability. However, because of repeated negative neurologic reports from various members of the college clinic staff as well as numerous other physicians, the diagnosis remained functional aphagia.

It was felt that perhaps the secondary gains of the disability might be a contributing factor, but psychiatric investigation revealed no evidence to support this hypothesis. Hypnotherapy was suggested; this was eagerly sought by the family but received with somewhat less enthusiasm by the patient. However, she proved to be a very suggestible subject with very little, if any, apparent secondary gain mechanisms demonstrable under questioning in a hypnotic trance.

After several training sessions, hypnotic regression to a pre-illness age of 4 years was achieved and the repetition of eating experiences at that age were achieved first in fantasy and later in actuality, accomplishing first the swallowing of water and later the actual eating of food.

After two or three such sessions, posthypnotic suggestion was given that the patient would again resume eating at home in full consciousness whenever she so chose. The next day after the posthypnotic suggestion was offered, the patient swallowed a small amount of food at home for the first time in some 9 years. Subsequent repetition and reinforcement of the posthypnotic suggestion was given in one or two further sessions, during which time the ease of eating and swallowing progressed fairly rapidly.

Two weeks later, the patient was hospitalized for closure of the gastrostomy wound. Her subsequent course has been uneventful and eminently satisfactory to herself, her family, and of course to her physician.

Case 2. An 18-year-old white male was seen for the complaint of aphagia following an episode of bulbar poliomyelitis 5 years previously. There were no residua except the inability to swallow.

Following recovery from the acute phase, intravenous and Murphy drip feeding had been utilized, resulting in considerable weight loss and weakness from inadequate nutrition. The patient had been taught the use of a gavage tube and had been discharged after 5 weeks' hospitalization. From that time the tube had been utilized continuously, since the patient was completely unable to swallow food or even his saliva. This latter necessitated the constant use of handkerchiefs, and his pillow was frequently quite moist in the morning.

Psychiatric survey revealed no apparent areas of secondary gain in this young man of essentially normal personality structure.

Hypnotherapy was begun with much greater enthusiasm on the part of both patient and therapist than in Case 1; however, this patient proved much more resistant to the induction of hypnotic trance than the first and was essentially able to operate only in the limited range pertinent to his disability. The patient was not readily amenable to posthypnotic suggestion or to positive or negative hallucinatory experiences.

Age regression to a pre-illness level was satisfactory only in working with phenomena revolving about the process of eating experiences, which the patient was able to reproduce with some degree of satisfaction. After several hypnotherapeutic sessions during which the swallowing of food and fluid was accomplished in fantasy during age regression, these procedures were finally accomplished in actuality. Posthypnotic suggestion of recovery of memory of these episodes and the pre-illness mechanisms involved in swallowing were then given, together with the suggestion that when the patient wished to do so he would start utilizing these abilities in full consciousness.

The patient followed these posthypnotic suggestions, much to his own amazement and gratification, fairly rapidly resumed the practice of eating and swallowing normally, and soon discarded use of the gavage tube. Follow-up has demonstrated satisfactory resolution of the problem.

Case 3. A 56-year-old woman was seen in the neurology clinic with a complaint of spastic paraplegia following a "stroke" 5 years previously.

*Presented at the meeting of The American College of Neuropsychiatrists, July 12-13, Dallas, Texas.

The patient's general health was satisfactory except for the persistence of hypertension. The gait was characterized by the typical spastic circumduction and rigidity of the left leg in walking. The left arm was maintained in an attitude of flexion at the elbow joint, and there was extension of the wrist and metacarpals with severe flexion and spasticity of the distal phalanges. Considerable limitation in the range of motion at the shoulder joint was demonstrated.

Physical examination revealed a middle-aged woman who had adapted well to the deformities inherent in her vascular accident. She had accepted these limitations and was making the best of them, and managed to maintain a cheerful and optimistic attitude. She was very cooperative and willing to submit to any procedure which might be of benefit to her. She proved to be a fairly suggestible hypnotic subject who achieved a reasonably satisfactory level of trance, and gradually improved her capacity as a hypnotic subject so that after several sessions she was able to achieve both positive and negative hallucinations. Under age regression to a pre-illness level, the patient was instructed to go through various activities utilizing the spastically involved extremities. In these first efforts some confusion was apparent, probably related to the difficulty associated with the organic components of her deformity. Posthypnotic suggestion was given that upon awakening she would be able to remember how she had used the extremities prior to her illness and that the relaxation and extended range of motion which had been possible for her to achieve in the trance state, particularly regarding the spastic deformity of the left hand, would tend to persist.

The patient was seen weekly for repetition of essentially the same procedures, with the hope of achieving reinforcement of the posthypnotic suggestion. These efforts were rewarded by diminished spasticity and an improved range and efficiency of motion in the left arm and hand. The fingers which had previously been relatively useless because of the spastic rigidity in flexion gradually became sufficiently flexible and mobile so that the patient could use the fingers individually, rather than using the hand as a unit as she had previously.

Some reduction of the intensity of the circumduction of the left leg was also noticed. Especially significant was the development of muscle soreness in the left leg, which suggested that the pattern of muscular activity was altered sufficiently to change the amount of effort exerted by the individual muscles.

Major deformity persisted, of course, but the patient reported gratification at the reduced fatigue and the increased usefulness and range of activity of the extremities.

Discussion

Sister Elizabeth Kenney spoke of muscle spasm and muscle pain as being very significant factors during the acute phases of poliomyelitis; she advocated their alleviation through the use of hot packs. The end results of the acute syndrome she described as "mental alienation of muscle" producing incoordination of muscle function.[1] This concept can be rationalized in a statement by Cameron and Magaret[2] that "Human learning in complex or unstructured situations often involves the sudden reorganization of ongoing behavior into new patterned sequences which then persist."

In the acute phase of poliomyelitis, pain is considerably exaggerated by attempts to use the involved muscle. Thus the motivation not to use or to paralyze the painful musculature is readily apparent; paralysis becomes a gainful procedure. The persistence of this gainful paralysis is consistent with the quoted concept of the learning process.

In the flaccid stage of paralysis following a cerebral vascular accident, the "mental alienation" process could very conceivably again be operating. Then in the recovery phase, spastic paralysis sets in and the involved muscles become painful. Since this pain is accentuated by motion, the secondary gain of avoidance of pain through paralysis becomes apparent. When the paralysis is learned as a gainful method of avoiding discomfort, this pattern of attitude and behavior then tends to persist.

Through the modality of hypnotic regression it appears that it is possible to recover the more normal and useful patterns of behavior after the secondary gains of avoidance of pain have been eliminated through recovery from the acute phase of the inflammatory or hemorrhagic condition. The usefulness of the recovery of more normal muscle functioning provides motivation for reincorporation into the muscle action patterns of the elements which have not been organically destroyed through the pathologic process. The technic of hypnotic regression is utilized as a method of recovering old, previously utilized, and well-known action patterns, thus obviating the necessity for new learning as utilized in the currently popular technics of rehabilitation.

Further investigation of this procedure is anticipated, and its utilization by others to broaden the range of inquiry is advocated.

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Personality patterns seen in general practice

► In order to help their patients recover from a disability, all practicing physicians must ask themselves, "How is this patient sick?" and "How sick is he?" In many patients, the pathogenesis and the effective methods of treatment are relatively obvious, whether the disorder is an infectious disease, a new growth or a depressive state caused by a severe disappointment. In a case in which the patient's personality strongly colors the clinical picture, careful physical and psychiatric examinations are required in order to make a sound diagnosis and to determine a plan for treatment.—Henry W. Brosin, M.D., *Postgraduate Medicine*, January 1958.

The
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Editorials

"Close to being its right hand"

An editorial report on the Auxiliary to the American Osteopathic Association

In his message of the month published in the January JOURNAL, President Carl Morrison called the profession's attention to a group which, ". . . while not actually a part of our professional organization comes close to being its right hand—the Auxiliary to the American Osteopathic Association." He pointed out that his judgment of its worth was based on more than 5 years of close observation. The President then added this straightforward comment:

> The A.A.O.A. is a pillar of strength to osteopathy, but its program is not widely known and its usefulness not fully appreciated by our profession. The work that the Auxiliary has done in the past has plowed the ground for much of what we are accomplishing today. As I listen to the plans and prospects for the future, I realize that the members are plowing ground for tomorrow. The Auxiliary is a group of serious-minded, practical people whose contribution to osteopathy has become much more than a selfish consideration of its needs because of the values that may accrue thereby. These women see osteopathy as a service to humanity.

Those who know Dr. Morrison best appreciate that he does not pass so unqualified a judgment lightly.

In the more than 20 years since the A.A.O.A. became an organization, it has grown slowly and steadily year by year in purpose and in power. The President's tribute is in complete accord with the measured opinion of present and many former members of the Board of Trustees, all of whom have had an opportunity to arrive at their own estimate of the part that the A.A.O.A. has come to play in the development of the profession.

The fact is, however, that despite the measured judgment of those in a position to review the evidence, in the field the usefulness of a national auxiliary to the American Osteopathic Association is often questioned. Paradoxically, the question is more often raised—and still more often implied by attitude—by local groups made up of women devoted to the best interests of osteopathy than by women who make no effort to advance osteopathy as a health agency. Criticism of the A.A.O.A. most often comes from local auxiliaries themselves, even to the point that some doubt the worth of their affiliated relationship to their national body. Such auxiliaries are usually engaged in helping a community hospital to meet its own medical needs. These are sincere leaders who question the value of a national auxiliary, and they make good case for their position.

Those dissenting from the program of the Auxiliary to the American Osteopathic Association have a common language: Our time, energy, and money are imperative to reach our goal, that is, our hospital. Our doctors must have an adequate workshop through which they can meet the medical needs of our community. How can we spare money to support a national organization that answers none of our needs? Every cent of our money and all of our effort are needed at home. As to the A.A.O.A. public relations program—our own doctors are our best public relations. We will help our men to fulfill their practice obligations to the community; osteopathy needs no other introduction in our neighborhood.

The osteopathic physicians of the community are not in a position to disagree with these splendid women, whose desire is to push forward locally to goals that coincide with those of the doctors themselves. These doctors, however, may know nothing of the larger goals of their profession, or of its national auxiliary, whose first order is to aid in the push to attain these goals.

It is a truism that individuals and groups, pressed by their own immediate needs, tend to become impatient with their own national bodies. Such persons are often unselfish and socially minded, and they are intelligent. In the middle of a wood, they are unaware of the forest; they see only the trees they must protect. In their good intention to protect their trees the idea that these trees are only a part of the forest does not occur to them. Yet, fail to protect the forest, and the day will come when they will have no trees! For the moment let us step out to the clearing, where the forest can be seen.

This report is an attempt to point out the worth of the A.A.O.A. to the D.O. himself, his D.O. wife,

and others that join with them in expending themselves on behalf of community medical needs channeled through osteopathic sources.

Criticism aside, let us assume that the American Osteopathic Association to which the Auxiliary is an aid, is fulfilling to a reasonable degree its obligation to meet its proportionate share of the major health needs of Americans through the services of osteopathic physicians. In accomplishing this, the A.O.A. has grown into a strong, tightlyknit, broadly experienced, and time-tested national group, wielding influence and exerting power within its purpose and function. As the spokesman of a profession, the A.O.A. is the representative of the doctor of osteopathy through whom he speaks as an authentic person. His A.O.A. membership is a reasonable guarantee to the public that he is what he purports to be. It is to such an organization as this that the A.A.O.A. serves as a right hand.

A life sketch of the Auxiliary to the American Osteopathic Association reveals it as a slow-growing organization approximately 20 years of age. It has had a sound growth, toughened by a long uphill struggle. It was somewhat of an upstart, cradled in doubt by its parent body, the A.O.A.

The A.A.O.A. had to hammer out its major purpose in terms of policy and program in order to identify itself for itself; as all organizations worth a whit to society must first do. It also had to make its purpose clearly understood to the responsible area of the profession, the Board of Trustees of its parent body. Without question, the Auxiliary has achieved a high degree of success with its first two objectives. Now it is in the process of identifying itself to the wives of osteopathic physicians and to the profession at large. In this endeavor the Auxiliary serves a purpose greater than its own. It has become a factor in restoring to the profession a restoration sorely needed, the sense of continuity and stability necessary to its continued growth and development as a school of medicine.

One can measure A.A.O.A. development within the last decade by its own growth rings. Within its first half-decade of life, the Auxiliary was felt by the A.O.A. to be in the main a social body. While men were busy with the business of the Association itself, the members of the A.A.O.A. could be busying themselves to their own purposes, not too essential in relation to osteopathy. Within a decade, however, recognition, perhaps somewhat grudging recognition, was accorded the Auxiliary as a body of considerable usefulness in forwarding the purposes of the profession. That recognition became cumulative until, within the last 5 years, the Board of Trustees of the A.O.A. has come to acknowledge that the Auxiliary is an organization of influence and power, dedicated to forwarding osteopathy as a healing art agency. Now grown up, the Auxiliary to the American Osteopathic Association is in general usefulness to the osteopathic movement second only to the A.O.A. itself. To speak of this organization in terms other than of its high purpose, its practicality, and its concrete achievement of purpose is to malign it. To accord it other than respect and appreciation reveals persons not well informed—to speak charitably.

How can the Auxiliary to the American Osteopathic Association at this period best be described? It is essentially a coordinating agency, rendering a service that no other comparable group can render at all levels of the organized profession—national, state, and community. It is the A.O.A.'s best single sponsor and interpreter of its many projects. Its relationship to local auxiliaries is not different from that of the A.O.A. to its own state, district and local societies.

The A.A.O.A. helps its local auxiliaries avoid a feeling of preciousness and the isolation that characterizes local groups having no national guidance. The Auxiliary, therefore, is indispensable as a coordinating group to local auxiliaries, so challenged by their obligation to osteopathy in the community that without it they set themselves apart from the rest of organized osteopathy, forgetting or never knowing that A.A.O.A. programs are all-embracing, ranging from O.P.F. to scholarships, from Christmas seals to student loans, and from hospital guilds to a project with students' wives that is a far-seeing venture in education.

Such a listing as the above may strike the reader as a potpourri—a mixture without meaning, but the role of a national auxiliary in osteopathy is much bigger than any massings of its projects. In this editorial report it seems good to emphasize two—the Students' Wives project and the National Osteopathic Guild Association.

The A.A.O.A. through its sponsorship of Students' Wives groups (there is one in every college) led by the Auxiliary's S.W. Counselor is actually conducting a training school for the wives of student-physicians. The rapid growth of each of these groups and the unbounded enthusiasm of the young wives for them are evidence of the need that the project fills. That their enthusiasm is not a whipped-up fervor is attested by the Counselor who points out that it is even difficult to be objective in reporting on these groups, so widespread is the inspiration radiated by their members. Almost all students' wives are employed, but they come out en masse to evening meetings, after a day of employment combined with housekeeping duties, to meet the Counselor. Deeply serious and full of questions, each is concerned with preparation for the role she will assume as the wife of an *osteopathic* physician.

Among these student-physicians' wives are those of interns and residents. Every Students' Wives organization lends psychologic strengths and securities beyond measure to its members and gives them a breadth of their husbands' profession that will eventually spill over to renewed strengths for the osteopathic movement itself.

The initiation of hospital guilds composed of lay women who direct their efforts to the benefit of local osteopathic hospitals became an inevitability, once it was evident that the major purpose of a national auxiliary to the A.O.A. was entirely different in function from that of a hospital group. What some thought was an issue became one artificially because the purposes of the essential groups were not clearly defined and separated. It became a problem of "division of the question." That fact is beginning to be seen, but is not yet seen in every situation.

Now there are eighteen guilds, and more are form-

ing. These guilds have been organized nationally as an autonomous body, sponsored by the A.A.O.A. The National Osteopathic Guild Association held its third annual meeting in December 1957. Vitally important as strong guilds are to osteopathic hospitals, these guilds are becoming even more significant because they have shown clearly that their concerns are too broad to be confined to a local situation. They are keenly interested in the profession and its attempts to meet a nation's health needs. The N.O.G.A., small as is its beginning, is even more significant when seen for what it is—*the first effort of organized lay support* for osteopathy on a national scale. Here is a new kind of vitality not reckoned with by those who see osteopathy as a passing thing.

This evaluation of the Auxiliary to the American Osteopathic Association holds no implication that it is a body beyond criticism. If that were implied, its governing body would indignantly reject the suggestion. They are too self-analytical and practical for fulsome praise. Among the many documents that come to the desk of the Editor of the American Osteopathic Association in the past year, none has been more inspiring than the Auxiliary's "Semi-Annual Report to the A.O.A. Board of Trustees," dated December 1957. Highly critical, even of its organizational structure, down-to-earth factually, discriminatingly detailed but not plateau-like, properly proud of their accomplishments thus far, convinced of the worth of its objectives but disturbed by the pace toward which it moves to their realization—the report, unlike many similar statements, shows no evidence of complacency and no loss of vision. All of the criticisms that have been made of the Auxiliary, and there are justified criticisms, are better made in their own report, accompanied as it is with the will to do something about these weaknesses and to *struggle* for self-correction.

The word "struggle" is used here advisedly. Struggle is fundamental to the human situation. Both individuals and social bodies are destined to conflict for life. Beset on one hand by a "Yes" and on the other by a "No," there emerges from conflict an answer that will determine the ultimate worth of either the individual or a society—"society" reaching out to embrace the state, the nation, and all of mankind. He who would understand and evaluate small groups will be able to do so to the degree that their efforts are placed within the total picture of man's efforts to determine his larger goals. The human situation of the moment becomes trivial only when its inferences are disregarded. The osteopathic movement in medicine, so long commanding to so many, becomes a little thing when given no perspective, backward and forward.

The Auxiliary of the American Osteopathic Association in itself, both full of strength and beset with weaknesses, stands as a tribute to modern woman working collectively for high social purposes. The answer to its particular achievement is not that it obtains because they are modern women, who as such, are remarkably capable; the answer is that they have been greatly challenged by the osteopathic situation today and that they are making a remarkable response. To this observer more than 5 years of study reveals that the high value of their response is *relational*. The A.A.O.A. is concerned with little unrelated and unconnected to its major purpose. The connections that it makes, project to project and projects to a total program, are in turn cognate to a high social purpose—improvement of the health of the American people. The result is that the connections between its activities are organic; they are not forced or merely verbal. Seen in breadth, the organization challenges its ablest critics.

There are many doctors of osteopathy who do not take membership in their profession lightly nor do they disregard its social obligation. There is a coinheritance here between man and movement that has yet to be defined and that is not present to the same degree in the profession of medicine. This is the principle that keeps osteopathy a vital and living thing. Defined negatively and delimited, the principle is in no way related to certain pet phrases such as "heritage" and "contribution" and "osteopathic concept" which have become a professional stock-in-trade.

More than any other group standing in an affiliate relationship to osteopathy, even more than the Association itself, the national Auxiliary seems to have captured a principle fundamental to the stability and continuity of the osteopathic movement. It is as an aid to those physicians who do not take the Auxiliary to the American Osteopathic Association lightly that this studied evaluation is presented here. Its reporting in the columns of THE JOURNAL in connection with an observation by the President of the American Osteopathic Association should attest to the fact that the report is not lightly made. If as an acknowledgment, this evaluation seems overdue, it is so only that it might carry a strong emphasis.

To some this report may seem an overstatement. Actually this is a report of an act of faith. The very existence of the A.A.O.A. is an act of faith. Acts of faith do not plaster the billboards of America. They tend to be concealed and rightly so. A century and a half ago a great statesman friendly to a then emerging republic wrote that to find a concealment is to make a discovery. To some this report may lead to a discovery!

Basic matters

The loss to medicine by the death of Alan Gregg was made a matter for comment in the June 1957 JOURNAL. In that connection Dr. Gregg's "Challenges to Contemporary Medicine," published in late 1956, was reviewed and highly recommended to all osteopathic leaders and educators. The reviewer noted that the monograph would become even more significant if it should prove to be Dr. Gregg's last published work.

Since then, however, the University of Chicago Press has published a posthumous collection of Gregg lectures, many of which had been addressed over the last decade to young men and women graduating as doctors of medicine. The volume offers eleven writings, obviously prepared with the great care that formal occasions demand of informal presentations; in this in-

stance, the end-product is the Gregg style of wisdom and humor and high faith distilled with crystal clearness. Among its titles are Creativeness in Medicine, On the Reading of Medical Literature, and Emergent Ability. All of the lectures tie in with the last chapter of "Challenges to Contemporary Medicine" entitled The Natural History of the Doctor.

Although addressed to the young physician, these essays would constitute a wonderful evening's reading for the mature doctor, frayed by the day's duties and in need of the kind of refreshment for which he looks to the TV program and does not find. From the recreation afforded by this book he could gain a renewal not to be found in food, drink, entertainment, or sleep.

Alan Gregg was a man who had learned the art of living, bearing his greatness with humility and his wisdom with a fine sense of humor. To read these talks is to sense how rarely such men are found even in that finest and most exacting of the arts, the practice of medicine. Dr. Gregg once quoted the philosopher, Alfred North Whitehead as saying "that he knew of no professional degree that opens to its holder the opportunity to exercise as wide a range of talents and tastes as that afforded by the M.D. degree." As nearly as any one individual might, the author of "For Future Doctors" embraced in his lifetime all these opportunities.

Notes and COMMENTS

Overcoming osteopathic lag

IN AN ADDRESS, "Citizen Leadership in Support of Medical Education," made recently by President Dwight D. Eisenhower at the Lahey Award Dinner of the National Fund for Medical Education, the President stressed the "obvious and critical need for more trained physicians." He referred to his own awareness of this shortage as early as 1948, and his continuing concern over the shortage. He spoke of certain classes of persons that were irreplaceable in today's world struggles, "persons who have acquired scientific and professional competence which no brief training can supply." Mr. Eisenhower placed the qualified doctor in this irreplaceable category. He went on to emphasize the fact that medical schools in America face inherited responsibilities that overreach their financial responsibility. This fact is resulting in a crisis involving not only the solvency but the very survival of many of these schools. The President called attention to "the gap between the ceiling of medical school receipts from all sources and the racing increase in costs of teaching, research, and medical care." On the basis of figures furnished him by the Bureau of the Census, he looked ahead 18 years to a still greater gap, when America will have a population of 228 million. And then, said Mr. Eisenhower:

> These 56 million additional Americans will need a great many more things than we are now able to produce. And no need will be more essential to them than doctors who care for their health. Our . . . schools today are turning out scarcely enough physicians annually to care for America's present population of 172 millions, to safeguard the health of our young men in the Armed Services, and to keep abreast of the overpowering forward sweep of medical research and knowledge.

Medical schools under osteopathic auspices seem destined eventually to receive their share of both government and philanthropic aid. There is a special kind of lag, however, between the modicum of corporate support given medical schools presently and the absence of such support for osteopathic colleges. Government support would seem assured, once it is made available to medical schools generally. But our special lag will be overcome to the degree that we are able to identify ourselves and our purposes to corporate givers and foundations who would help us—if they knew of our contribution to health needs through our education and training of student physicians.

The day for isolation and self-segregation is long past for osteopathy—if that day should ever have been. In the meantime, the reality of the osteopathic situation today and for its foreseeable future demands that we cling to the raft that sustains us: Our own support of osteopathic education. Having come thus far, it would be contrary to human experience to think that for one moment we might give up the struggle. The Osteopathic Progress Fund is our one best help; even while the Osteopathic Foundation is girding itself to broaden enormously the field of its activities. Our challenges on our every front in themselves are evidences not of our weaknesses but our worth.

Of ill health and famous men

AN ARTICLE in a recent issue of a British medical journal, *The Practitioner*, suggests that a study be made of the adverse effect mental and physical changes might have on the performance of statesmen. Its author, Dr. Hugh Joseph L'Etang, pointed out that work studies of many occupational groups have demonstrated that such changes might adversely affect capability. Dr. L'Etang declared, "Statesmen seem to have been neglected and here surely is a group to be investigated by the professional historian and the inquiring clinician."

Among the statesmen discussed were Presidents Wilson and Franklin D. Roosevelt, and Andrew Bonar Law, Ramsay Macdonald, Stanley Baldwin and Neville Chamberlain, all former Prime Ministers of Great Britain. Others mentioned were James Forrestal, Harry L. Hopkins, of America, and Stafford Cripps and Ernest Bevin of Britain. Another was the late Lord Keynes, the economist, included because Dr. L'Etang rated him as a man who had "had an influence over world events in the past forty years which has exceeded that of many statesmen."

The history of the illnesses of each of these men was studied in relation to their responsibilities as world figures and to the fact that the health of statesmen may influence the fate of nations. An industrial health physician, Dr. L'Etang has conducted this research as a spare time interest. He also has written on military psychiatry and the physical disabilities suffered by sportsmen.

Referring to the publicity attending the illnesses of President Eisenhower, Dr. L'Etang noted that it had been condemned by unthinking persons "as an unwarranted intrusion into the sick room, and a sign of morbid curiosity and contemporary ill manners." He pointed out, however, that lack of publicity in the past has resulted in the public's being unaware that statesmen have continued in office when seriously incapacitated. Of President Roosevelt, Dr. L'Etang recalled it had been said that the concessions he made to the Russians at Yalta were the mistakes of a dying man. Dr. L'Etang suggested that while his supporters declared he had been in full command of his faculties, this is "very difficult to believe."

The author referred specifically to the illnesses of some of these leaders now dead who are called "guilty men" because they failed to stop the dictators rising to power in Europe. He suggested that the evidence is that these men were sick men, rather than sinners.

The study has resulted in caustic comment in the British press. The world famous *Manchester Guardian*, in discussing the problem of ill statesmen, emphasized that free nations have only themselves to blame if they let themselves be "ruled by sick men." Dr. L'Etang's study indirectly calls to account those physicians, no matter how highly placed, who let their personal preferences and opinions overrule the accepted standards of good medical judgment.

Labor's interest in medical care

OUR PROFESSION'S awakening interest in industrial medicine is both natural and obligatory. Its obligation is born out of its commitment to render a complete health service to the American people. Physicians, however, know little or nothing of labor's long view of medical care projected into the health needs of 40 million labor-connected people. If the doctor's view of medical practice goes beyond that of fee-for-service to which he is conditioned, it is much more likely to be sympathetic with the problems of management in relation to a responsibility that it cannot escape—and in fairness, let it be said, management at its best does not wish to escape. Labor's interest has rarely been presented so clearly and challengingly as in an address made during the past year before the Massachusetts Hospital Association. It should be read particularly by doctors of osteopathy engaged in industrial medicine, and by our organizational leaders interested in encouraging our younger physicians to prepare themselves for the practice of industrial medicine. The address is now available through publication in *The New England Journal of Medicine* for October 31, 1957. It was given by Nelson H. Cruickshank, director, Department of Social Security, American Federation of Labor and Congress of Industrial Organizations. Write the A.F.L.-C.I.O., 815 16th Street, N.W., Washington 6, D.C., for reprints.

The physician's own library

THIS HEADING, the title of a little book recently published by Charles C Thomas, is meant to attract the attention of young physicians (and student-physicians) who are already aware that their profession is one that necessitates continual reading, if they are "to keep even reasonably abreast of current development and bring to (their) patients the knowledge and advice which is their due." Yet, they find themselves at a loss to know how to build their own library wisely and for the long term. This new book, which is reviewed briefly on page 408 of this issue of THE JOURNAL, is actually a physician's guide for planning a library so that its development, care, and use can be made a part of daily life, to the end that he become the knowledgeable physician capable of being fully productive in his professional life.

Chapter headings from "The Physician's Own Library" suggest the rich mine of practical information made available by the author of this monograph of less than a hundred pages. Among fourteen topics treated are these of special value: Planning the Library, Budgeting, Selection of Books and Journals, Book Loan Services Available to the Physician, Use of the Physician's Own Library, the Medical Paper, and Preparing an Index. The book is both a guide and an incitement to a life-long project which not only would pay off richly but inevitably bear further fruit: an interest in the whole world of books through which the individual lives the life of the race of man and not merely his own little life, self-centered and withdrawn.

Recorded progress in science

THE SIGNIFICANCE OF the International Geophysical Year to medicine has been previously emphasized in these pages on the basis that there is little fundamental knowledge of man's environment which does not have something to contribute to a fundamental knowledge of health and disease. Since then a new category of medicine is being referred to, not only in

scientific writing but also in popular writing—"space medicine." I.G.Y. is not more than well underway; this is being written while it still has more than a year to go, these 60 nation studies to continue through December 31, 1958. Many writers, speakers, and individuals with more than the usual passing interest in scientific matters will welcome, therefore, "A Bibliography for the International Geophysical Year," now made available by the National Science Foundation. For the most part it lists discrete articles of a nontechnical nature. The fifty-one-page bulletin can be obtained from the Superintendent of Documents, U.S. Government Printing Office, Washington 25, D.C. Price 25 cents.

Similar in intent and for distribution to serious students of atomic energy, is the catalog, Library of Atomic Energy, published by the Pergamon Press, Inc., American address 122 East 55th St., New York 22, N.Y.

A popular presentation on atomic radiation and its effects, designed for use by technicians and scientists engaged in nuclear power activities, has been made available by the RCA Service Company, Camden 8, N.J., 1957. $1.60. It was originally prepared for use by the United States Air Force. Its medical value is high in relation to radiation injury.

"Wake up and read"

CUT FROM ONE pattern are three matters being presented to JOURNAL readers. This comment would guide you to the pattern, that you may miss no one of its parts. And to miss is easy. Modern living fragments life so completely that our sense of its unity gets lost, even where it is apparent. The first piece of the pattern is a guest editorial published in the December JOURNAL, "Intellectual Enjoyment," by Dr. Thomas J. Meyers. Dr. Meyers was writing especially about the student-physician and of his need to have learned to read, long before he studied medicine. Of all persons who should establish habits of reading and study, none needs to be disciplined in these habits more than the doctor.

Piece two of the pattern is an article entitled "Bibliotherapy" that also appeared in the December issue. Its author, Dr. Anthony DiNolfo, writes of books, not for the physician's enjoyment, but of their exhibition as therapy, of their prescription by the doctor as an agent in the development of mental maturity and for the nourishment and sustainment of mental health. (Are there any of us who would deny that as physicians we stand in need of self-administration of such therapy?)

The casual reader of "Bibliotherapy" may confuse its author's central position in writing the article with his primary concern. It is evident that Dr. DiNolfo would be of practical assistance to the physician who does professional counseling, and from this position he writes a helpful guide. His primary concern, however, shines through—that the doctor himself shall be a richly informed person if he is to be capable of counseling. I suspect that the author would not stop with "professional counseling" but point out that traditionally the general physician has often been called upon to counsel. And first, the healer must be healed! Doubtless this widely informed and thoughtful doctor of osteopathy is withholding from us a much longer list of "suggested reading" in the broad field of world literature against which we should check ourselves. Only read his article planfully, and you will be led on to new fields.

This comment constitutes the third piece of the pattern. March 16-22, 1958, is National Library Week in America—another among the glut of "Weeks" observed each year. Perhaps all are important to an activities-obsessed people. This column would make a special plea alone for National Library Week—actually as emphasized by the National Book Committee, for a "national reading week."

Why should the physician cooperate with National Library Week? The answer is simple—if what was once claimed for him in the stately language of decades ago still holds—the doctor is among those eligible to belong to the "society of learned men." Who should better point out to patients the inscription still to be read on the ruins of the ancient library of Thebes, "Medicine for the soul." Perhaps for all our learning, we know only one more thing than those Egyptians—that which is "medicine for the soul" is also medicine for the body. The physician who joins in an attempt to awaken human beings to the delight, the value, and the magnificent opportunities of the habit of reading is merely playing a historic role.

The ways of modern quacks

THE NATIONAL Safety Congress, an organization that helps to keep everyone conscious of dangers that lie in wait to maim and to destroy, held many medically related sessions during its recent 45th annual meeting in Chicago. A discussion of "Some Current Aspects of Medical Quackery," by Oliver Field, director, Bureau of Investigation, American Medical Association, was of special significance. The speaker advised his audience that today's quack most often works in the field of cancer. Because cancer is the particular interest of the public and physicians alike, the pay-off comes more quickly, easily, and richly.

Hiding behind religion and selling the public on the claim that its benefactor is a martyr to medical persecution are methods of promotion learned over the years by quacks as most productive. Fields other than cancer, in which the quack flourishes, include reducing preparations, arthritis and rheumatism cures, rejuvenators, special dietary foods, and cure-all gadgets.

Incidentally, the Bureau of Investigation of the A.M.A., now more than a half-century old, in earlier days rendered yeoman service in exposing the "patent medicine" industry. Today's quack is more foxlike and difficult to catch. He has learned to take on the protective coloration of science while engaged in his job of exploitation.

MESSAGE FROM THE PRESIDENT OF THE A.O.A.

▶ For a short time I have a breather—fall conventions are behind me. Much as I appreciate my opportunities to visit with you, it is good to get back to my own office and my practice. As I wrote you in the January JOURNAL, I got through the A.O.A. midyear meeting without too many difficulties, thanks to the cooperation of the Board and its agencies. The January JOURNAL editorial report, "The profession midyear," outlines briefly how our Board accomplished its work. If you have not already done so, I hope you will read this report.

I have no national program scheduled until I meet with the College of Osteopathic Obstetricians and Gynecologists in Denver in February—near the time you will be reading this letter. March starts the annual round of spring divisional society conventions; April steps up the pace; and my May schedule is made possible only by plane travel.

This pause gives me a chance to review briefly with you some of the medical measures and health legislation that may come out of the new session of the 85th Congress. A few of our doctors may question whether or not our profession has an interest in Washington matters beyond that of our interest as citizens. Those who think of us as a group set apart because we once were, need only to be reminded that our physicians meet the medical needs of 9 to 10 million people of this nation. And any governmental program that deals with the health of America is important to any physician, no matter to what school of practice he belongs.

Governmental activities in the health and welfare field directly affect the health and welfare of our patients and the structure of our practice. Cuts in scores of medical care, public health, and hospital programs were proposed in the President's Budget Message to Congress as a way to offset increased military spending. This proposal is a matter for our serious consideration not only as citizens but also as physicians. I do not pretend to know any more about these things than you do, for as Will Rogers said and you are old enough to remember: "I only know what I read in the newspapers." I read what is being said in the newspapers because as your President I am often called upon to say what we as a profession are thinking about medical issues and because I, as an individual, want to know what is going on in the world I live in.

I believe I express your thinking as physicians—and that of all other physicians for that matter—when I say we are not for the subordination of a nation's health to missiles. We think that would be a dangerous policy for the United States Government, whether brought about by this or any other Administration. We think that any party responsible for slashing health and medical items beyond the will of the people of America would find it "unhealthy" for itself. I am quite sure that our representatives in Washington know that as well as we do. If the cuts suggested by the Administration are made by the Congress, I am told that they would be the first Federal retrenchment in health and welfare programs since the Roosevelt Administration set most of them in motion.

I believe our own profession, composed as it is of many shades of political opinion, would question whether our Nation has come to the point of having to decide whether it is to have guns or health. (You will remember during World War II there was considerable talk of a decision for "guns or butter.") If the issue of how to slice the budget dollar lay between necessary expenditures for major national security and international affairs or expenditures for civil benefit programs, certainly there would be no question in anyone's mind. Protection is paramount. There cannot be one American worthy of the name who would not agree with our President that as individuals and as a nation, "Our response must rise above personal selfishness, above sectional interests, above political partisanship. The goal of lasting peace with justice . . . is worth all of our efforts. We must make the necessary sacrifices to attain it." There can be no argument on that score.

As you read this "Message," debate in Congress will be in full swing to determine whether or not the issue is actually an "either-or" proposition. Opposition to the Administration's apportionment of the budget dollar is based on the assumption that it is unnecessary to cut civil benefits to 22 cents in order that 64 cents of the dollar can be used to provide for major national security in 1959. As outlined in the Budget, the Administration's cuts are confined to the area of civil benefits.

The President contends that the states must take

over much more of the financial burdens brought about by health, education, and welfare programs, particularly the programs that are maintained by cooperative grants-in-aid. As you know, both our profession and the medical profession are aided by such grants. The political issue does not turn on the worth of these programs—it is how to get them financed. Who will pay for what is the actual issue! We should also know that few of these proposals would produce economies before 1960.

A proposed major cut-back of serious concern to our profession is in hospital construction. The hospital program of our profession has been aided through the Hill-Burton Act and in some areas the community need has been so great that every sacrifice possible has been made by the community and the profession itself to assume their share of the construction cost. I know of no case where these hospital projects would have been possible with a lesser degree of Federal aid.

It is good that the proposed budget makes less inroads on the Public Health Service than in other areas of health, education, and welfare, except for the drastic cut in hospital construction aid. It is very difficult, however, to confine our health needs as a nation, to purely medical needs. Slum clearance, housing, education—all are made for welfare, and without welfare there can be little health for a nation.

As I write these notes to you, the January 20 issue of the useful and highly reliable *Washington Report on the Medical Sciences,* the privately published 4-page weekly bulletin that keeps so many citizens up to date on health matters in Washington, calls attention to the strong fight that will be made to enact the Smith Bill (S.2293). The Bill calls for the creation of a Federal Advisory Council of Health at sub-Cabinet level, possessing great power, direct and implied, over health care of veterans, aid to states for hospital construction, training and utilization of medical personnel, et cetera. Gerald G. Gross, editor of the *Washington Report,* does not predict passage of the Smith Bill, but points out that it will come up at a time when guidance is needed for determination of the Government's proper role in doctor training as well as in other programs related to health care.

This is less than a bird's-eye view of the purely medical issues that are now being debated in the Congress. Our profession, small as it may be as a health agency, has long insisted that it be recognized as ready to make its measure of contribution to good health care. That recognition is so nearly complete that we dare not pass over the obligation that it involves—to know what the plays are in the league to which we are now assigned. These matters that I have named are just a sample of many more to which we should give thoughtful attention as physicians. Let us keep our eyes and ears attuned to Washington as long as the Congress is in session.

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DEPARTMENT OF PUBLIC RELATIONS

C. D. Swope, D.O., Chairman

*The Dependents' Medical Care Program**

Major General PAUL I. ROBINSON, M.C., U.S. Army

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Executive Director Dependents' Medical Care Program
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▶ The Dependents' Medical Care Act became a law of our Nation on June 7, 1956, to be operable 6 months thereafter. The Program is designed to provide improved and uniform medical service for dependents of members of the uniformed services and thereby enhance the morale of service personnel. The term "uniformed services personnel" applies to members of the Army, Navy, Marine Corps, Air Force, Coast Guard and the commissioned members of the Public Health Service and the Coast and Geodetic Survey who are on active duty for a period of more than 30 days. Traditionally, the medical services of the Army, Navy, Air Force and Public Health Service have been rendering medical care within their own facilities to dependents of their respective services. The law provides for continuation of this service and, in effect, provides further for the care of dependents of one service in the medical facilities of any of the other services, so long as facilities are available. Retired personnel and their dependents, parents and parents-in-law, if dependent upon an active duty member, and deceased members' dependents, under certain circumstances, are eligible for care in service facilities. Unlimited outpatient care is also allowable in service facilities.

The law provides an entirely new feature of dependent care for the services—care of dependents in civilian hospitals and by civilian physicians. Only wives and children of uniformed service members on active duty for a period greater than 30 consecutive days or dependent husbands, if actually dependent upon service women, may be treated in civilian facilities. The civilian program, as defined in the law, is essentially a hospital program. Complete maternity care is authorized and bodily injury may be treated on an outpatient basis under the Program. Otherwise, hospitalization must have been required in order for a patient to be eligible for treatment under the Program.

The working of the Program is relatively simple. The dependent selects a physician and presents her identification

*Presented before the Medical Care Section of the American Public Health Association, Cleveland, Ohio, November 15, 1957.

card. She should ask the physician if he will care for her case under the Dependents' Medical Care Program. If he determines that she needs hospitalization, he sends her to the hospital, performs the necessary surgery or renders the necessary care, and sends his bill to the Fiscal Administrator paying physicians. This can be the Blue Shield, the Medical Association, or an insurance company, whichever is acting as Fiscal Agent for the state in which care is rendered. Hospitals send their bills to the Fiscal Administrator paying hospitals, either Blue Cross or Mutual of Omaha, depending on the location of the hospital. With the exception of certain stipulated amounts to be paid by the dependent or sponsor, the Government is responsible for complete expenses. For example, the dependent or sponsor is required to pay the first $25 of hospitalization or $1.75 per day, whichever is greater.

Several basic principles are enumerated in the directive signed by the Secretaries of Defense and Health, Education, and Welfare. Our Program is one of full coverage except for the stipulated amounts patients must pay. The Program then, in some ways, resembles the deductible policies which are being written by many insurance companies. The Program also called for fair fees for each medical procedure to correspond to the normal physicians' charges to persons having an annual income of approximately $4,500. It had been determined by a survey that more than 80 per cent of all of our servicemen whose dependents would seek medical care have an income of less than $4,300 per year. Insofar as hospitals were concerned, there was no stipulated amount which would be paid. They were to charge their normal billing rates minus whatever discount they agreed to allow under Blue Cross or insurance company arrangements. You are all aware of the fact that the American Hospital Association, by a resolution at its meeting in 1956, recommended that all hospitals allow Blue Cross rates for the Dependents' Medical Care Program. There was to be a free choice of physician by the patient; likewise, the physician was to have free choice as to whether he would accept patients under the Program. Not only was there to be a free choice between civilian physicians, but the patient was to have free choice between military and civilian physicians and facilities. This provision was made primarily for the protection of training programs in uniformed services hospitals. However, it could be used for other purposes. In fact, only a few weeks ago the Appropriations Committee of the House of Representatives reported that, for economy reasons, consideration should be given to restricting dependents located in the vicinity of service facilities. As of this date, no restrictions have been placed on dependents anywhere and no recommendations have been submitted to the Secretary of Defense to impose such restrictions.

All of our contracts are nonprofit contracts. In other words, the Blue Cross, Blue Shield, Medical Societies and insurance companies, who are acting as Fiscal Administrators for the Program, are reimbursed for their costs and no more. These costs are all audited by the Army Audit Agency and are adjustable from period to period.

As of September 1, 137,286 claims had been received from Administrators paying hospitals and the total amount was $14,315,313; 194,928 claims had been received from Fiscal Administrators paying physicians in the total amount of $13,594,716. The Program is, at present, running at the rate of approximately 5 million dollars a month. The Administrative costs vary from place to place but, in general, can be said to be running about 4.1 per cent. Approximately 80 per cent of our patients are female; the males being children under 14 years of age, generally speaking. Some 35 per cent of all cases have to do with maternity care; tonsillectomies account for about 17 per cent of the cases; abdominal surgery for approximately 9 per cent and orthopedic surgery for less than 2 per cent. On the basis of an eight state study which we have made, the over-all cost of the program, including physicians' and hospital bills, is $49.59 per patient day; the average patient stay has been approximately 5 days per case. We feel that this will increase somewhat because a few more long-term cases are now being reported.

The law and the directive do not permit care of chronic diseases but do allow care for acute exacerbations of chronic diseases and for operative procedures necessary for their correction. Likewise, the law does not provide for elective surgery, which is defined in the directive as that surgery requested by the patient but having no medical indication. Similarly, treatment of the nervous and mental diseases is not permitted under the law or directive, but the directive does authorize care of acute emotional disorders until such time as the patient can be placed under care either at a military facility or at a civilian facility at no expense to the Government. You can well realize that these three categories, namely chronic diseases, elective surgery, and acute emotional disorders, have created numerous problems. There are many cases which could come under the Program in all three categories or they could be denied under the Program. We have been accumulating experience and making decisions on an individual basis with a view to delineating the care which is authorized and that which is not authorized in these categories. However, we are not yet in a position to write a directive on these subjects. We have covered tuberculosis and acute emotional disorders in our explanatory letters which have been distributed to all of our contractors.

Because the Army, Air Force, and Public Health Service have traditionally rendered considerable dental care to their dependents and since the law discontinued this dental service and provided no dental service in the civilian part of the Program, the dental problems have been many. The law and the directive provide for dental service only if it is adjunctive to medical care. In other words, to receive dental service, the dependent must be a patient in the hospital for a medical or surgical condition and must require dental service to alleviate the symptoms or assist in the treatment of the medical condition for which he is hospitalized. A little more leeway exists for dental care in service facilities in that emergencies can be treated and if a station is declared remote (in other words, away from available civilian dental facilities), then more definitive dental work can be accomplished in that area. A committee has been appointed to make an exhaustive study of the whole dental problem with a view to making some provisions in either the law or the directive or both.

In general, it can be said that the physicians of the United States, Alaska, Hawaii, and Puerto Rico have accepted the Dependents' Medical Care Program. Some physicians sincerely believe that the Program represents a form of socialized medicine and a few articles have been published to this effect. It is our impression, however, that all physicians feel that the reasons given for the institution of the Dependents' Medical Care Program are valid and that certainly something should be done for the servicemen's families. In some areas of the country, physicians have never worked under a full coverage program. Some of them are dissatisfied on being told what their maximum fee should be in any given instance. They consider it one of the rights inherent in the practice of medicine to determine what a patient should pay for a certain amount of care. The Program is complicated and the claim form necessarily must contain a great deal of information because it is the document on which payment is based and is the only source of statistics of any kind concerning the Program. Many forms have had to be returned to physicians for corrections. Physicians as a whole, however, are participating admirably in the Program and no report has been received from any dependent that a civilian physician has refused to furnish care authorized by the Dependents' Medical Care Act. Hospitals have also accepted the Program and, in many areas, have widely acclaimed it as enabling them to improve their equipment and standards. Payments have been prompt and complete in the great majority of instances and, since hospitals are notoriously somewhat short of funds, this has been a great factor in their acceptance of the Program. Dependents, themselves, have been lauditory in their comments concerning the Program. Forty-two per cent of all of those who have used the Program were living apart from their sponsors because of exigencies of the uniformed services. This is the group which it was particularly desirable to reach and we believe, without question, that the Program has made service available to them when it could not have been rendered through uniformed services facilities.

Undoubtedly, the Dependents' Medical Care Program has considerable public health potential. Here is another large group of people, probably as many as 800,000, who would have had difficulty paying for their medical care had this Program not been placed into effect. The individuals of this group

vary from day to day since a great number of personnel come into the service each month and a like number leave the service that month; so, in the course of a year, the Program will affect a great many persons. They will receive good medical care and this fact should mean better health for another segment of our society.

*Blood transfusions In the United States**

► *Early in 1957 the Project Advisory Committee of the Joint Blood Council initiated a postal card survey designed mainly to ascertain the extent that human blood is used for medical purposes in the continental United States and in the territories and possessions. Dr. Wilson functioned as director of the survey and Commander Paul T. Rees, U. S. N. (Retired), Washington, D. C., of the Council's staff, as associate director.*

The ensuing report contains abundant authoritative information to invite the attention of agencies engaged in blood procurement and distribution, the medical and public health professions, and organizations and individuals interested in blood as a national resource.

A year ago the Council authorized its Project Advisory Committee to lay plans for ascertaining by a comprehensive schedule needed facts concerning technical procedures, personnel policies, donor recruitment, reciprocity, and other facets of transfusion services, whatever their type.

Before embarking on such an extensive investigation, however, the Council instructed the committee to send a postal card inquiry to all known hospitals in the continental United States and in the territories and possessions. Simply framed, the questions on the card aimed at determining (1) how many transfusions were given in the calendar year 1956; (2) the sources of the blood supply; and (3) the proportionate supply (percentage) from each source. In addition, the smaller inquiry promised to afford a suitable basis for determining which hospitals should later receive the detailed schedule. After several months' preparation, including consultation with numerous advisors, the committee, in August, 1957, distributed the schedules printed for the Council's more comprehensive project, work on which will continue well into 1958. (The project is being supported in part by a research grant, W-76, from the Division of Hospital and Medical Facilities, U. S. Public Health Service. The separate postal card inquiry reported upon herein was likewise supported by the same grant.)

MATERIAL

For mailing purposes the committee utilized lists published by five different organizations,[2] an unpublished list made available to the Council, and metropolitan telephone directories. Altogether the Council's initial roster contained nearly 9,600 hospital names and addresses. Correspondence subsequently revealed that many hospitals (small, nongeneral) used no blood or had "gone out of business." A few missed earlier turned up. On finishing the revision, 8,568 remained as pertinent total for the continental United States and 127 for the territories and possessions. Inasmuch as preparation of the final roster entailed the expenditure of considerable time and labor, these figures can be accepted as practically correct for the year 1956.

On Jan. 4, 1957, the postal cards were sent to all the hospitals. Those that came back containing the requested data the staff allocated to categories corresponding to the sources of blood supply. Printed identifying letters and definitions had enabled the respondents actually to do their own coding; hence the acquired material, except for minor editing, was already adapted to the following classification of blood sources: (A) blood collected by reporting facility; donors not paid; (B) hospital other than reporting facility; (C) Red Cross regional center; (D) community or nonhospital blood bank; (E) commercial blood bank; and (F) paid donors; blood collected by reporting facility.

TRANSFUSIONS: CONTINENTAL UNITED STATES

The sample represented every state and the District of Columbia and formed an excellent basis for making national estimates. In the continental United States as a whole, 4,920 hospitals, or 57.4%, sent in their figures. Notwithstanding this favorable return, and most essential to a proper understanding of the assembled data, the sample by no means can be considered to have been random. Hospitals that used blood more or less routinely, whenever patients' requirements dictated, took pride in their records and reported; whereas those where blood therapy was less routine answered in fewer number. No other construction can be placed on the apparent differences between respondents and nonrespondents.

The transfusions reported on the cards exceeded 3,500,000, a total large enough to render the acknowledged bias, caused by the proportionately greater usage by respondents than nonrespondents, harmless to the task of projecting the figures. For statistical control purposes, blood usage data for the year 1956 provided by the American National Red Cross served adequately, forming the groundwork for requisite preliminary calculations. After completing initial extensions for the nine geographical divisions adopted for publications by the U. S. Bureau of the Census, including state estimates, the staff consulted several advisors who promptly supplied data for effecting adjustments. Finally, revision in the light of this assistance placed the estimate for the continental United States at 4,585,000 transfusions. A published total greater than this number would rest on a poor foundation.

Currently a need exists for mass data on number of transfusions per patient. Assuming 2.3 transfusions (the figure employed at present for calculating purposes), the survey returns therefore indicate that in 1956 the persons who received blood therapy totaled approximately 1,993,500. Manifestly, the supply required for that large number was not the total supply involved in the year's operations. For the purpose of making a procurement estimate in the interest of completeness, the committee after careful study decided that an extra 9% would be a satisfactory allowance. Included in the supply for meeting a subsidiary demand was the blood utilized for preparing plasma and derivatives and a further portion that went into the "pipe line." This includes commonly quantities collected but not yet processed, processed and awaiting distribution, unused on refrigerator shelves in hospitals, and in transit between facilities. In rounded figures all the additional components probably brought the total collections up to 5 million pints.

Having dealt with a sample covering an estimated 78% of the entire processed demand, and having bridged the remaining 22% to arrive at 4,585,000 transfusions, the committee has established a new base for such defense and other planning that recognizes blood as a most important national resource. Not to be disregarded, however, are the details that lie beneath the total. For example, 45% of the hospitals reporting to the committee were in the class "under 200 transfusions" (of the total hospitals reporting, 22% were in the class "under 50 transfusions;" these hospitals accounted for only 0.5% of total blood usage), yet the same hospitals accounted for only 4% of the total usage. Some believe that too often in the past estimators have ascribed disproportionate weight to the blood usage in some teaching hospitals and in others where surgical patients are relatively numerous. Projections from such data have led to the exaggerated totals which have appeared in print, especially over the last two years. An effective brake on extravagant claims now emerges from the plain fact that in the United States small blood users predominate numerically.

Combining the figures for inside and outside the continental United States, the estimated national totals for 1956 indicate (in rounded numbers) that physicians gave 4,633,000 transfu-

*Excerpts from a report by the Project Advisory Committee of the Joint Blood Council, Washington, D.C. (See page 15 of September 1957 JOURNAL.)

sions to 2 million patients and that the facilities engaged in procurement collected 5,100,000 pints of blood. Since conditions will change with the passage of time, the committee believes that another survey should be made four or five years hence.

SUMMARY

The preceding text sets forth the results of a postal card survey conducted by the Project Advisory Committee of the Joint Blood Council in order to develop nationally needed facts concerning the number of blood transfusions in the calendar year 1956. Prior to the survey, the Council's staff had determined that the hospitals which use blood number 8,568 in the continental United States and 127 in territories and possessions.

Seasonal factors and inventories which are short with respect to blood of a particular group and type may cause occasional, temporary disruptions to the blood supply, but by and large a sufficient quantity becomes available to meet the expressed demand. Civilian blood procurement, from its beginning in the years immediately following World War II to the present time, never has developed in a systematic pattern. Regional collection centers maintained by the American Red Cross provided 38% of the blood used; hospitals that obtain blood from voluntary, unpaid donors provided 36%; commercial blood banks 11%; nonhospital community blood banks 9.5%; hospitals that furnish blood to other hospitals 4%; and directly paid donors 2%. All were effective elements of the collection and distribution machinery during 1956. The same complementary situation existed in the territories and possessions except that no blood came from the Red Cross centers, which are on the mainland.

On the basis of a sample that covered an estimated 78% of the blood usage, the committee places the number of transfusions in continental United States at 4,585,000; and an even more complete return permits an estimate of 48,200 transfusions for the territories and possessions. Detailed information regarding geographical variation in usage, and collateral facts concerning total blood collections and number of persons who received transfusions, are also included.

On the problem of projecting from the sample data to arrive at estimates for the United States the Project Advisory Committee received repeated assistance from John B. Alsever, M.D., Southwest Blood Banks, Phoenix, Ariz., and Lloyd B. Newhouser, M.D., John Elliott Blood Bank of Dade County, Miami, Fla.

On special phases of the same problem the committee used data (in some cases confidential) provided in a fine spirit of cooperation by Marta Fraenkel, M.D., City of New York Department of Hospitals, New York; J. Richard Czajkowski, Ph.D., King County Central Blood Bank, Seattle; R. F. Ambelang, Milwaukee Blood Center, Milwaukee; G. Albin Matson, Ph.D., The Minneapolis War Memorial Blood Bank, Minneapolis; T. F. McNair Scott, M.D., The Philadelphia Serum Exchange, Philadelphia; and the following members of the American Red Cross organization: Raymond F. Barnes, M.D., and Robert A. Freeman, Area Office, St. Louis; Joseph Hladecek, Area Office, San Francisco; Edward M. Schottland, Regional Center, Los Angeles; Herbert R. Brown, M.D., Regional Center, Rochester, N. Y.; Victor G. H. Wallace, M.D., Regional Center, Hartford, Conn.; and Robert E. Baker, M.D., Regional Center, Boston.

Also very helpful either during the planning stage or subsequently were Bernice M. Hemphill, Irwin Memorial Blood Bank, San Francisco; Marion R. Rymer, Ph.D., Belle Bonfils Memorial Blood Bank, Denver; F. J. Pinkerton, M.D., Blood Bank of Hawaii, Honolulu, T.H.; Merrill J. Wicks, M.D., Tacoma-Pierce County Blood Bank, Tacoma, Wash.; Mrs. Edward A. Babcock, Sacramento Medical Foundation, Sacramento, Calif.; Chester D. Swope, D.O., American Osteopathic Association, Washington, D. C.; and in the Red Cross organization: William M. Markel, M.D., Regional Center, New York; Frederick Proescher, M.D., Regional Center, San Jose, Calif.; Jerome C. Smith, Regional Center, Rochester, N. Y.; and the Blood Program staff at the national headquarters, Washington, D. C.

The committee is especially grateful to George W. Hervey, Sc.D., for devoting time and talent to assembling the data and writing the initial draft of this report.

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THE A.O.A. CODE OF ETHICS

*Chapter II.—Advertising is unethical**

▶ Section 6, Chapter II, Article I of the Code of Ethics attempts to establish standards for the guidance of members of the profession in regard to advertising or promotional information. The basic principle is that advertising of any type, regardless of whether or not there is any consideration represented as payment for such advertisement, is unethical. This does not preclude following certain universally accepted local customs. It does, however, prohibit what is generally known as advertising of an individual or institution, except as it is permitted in the sense that health information or educational material may be classified as a form of advertising.

The basic principle that advertising in any manner is unethical emanates from the fact that doctors of osteopathy are members of a learned profession. Osteopathic medicine constitutes not a business or trade as those terms are generally used, but rather a profession followed by a group of professionally trained men and women. The principle against advertising reflects the age-old doctrine that the practice of a profession may not be commercialized. It requires no discussion to establish that advertising tends to commercialize and degrade a profession, leaves the ethical members without protection or guidance, and deceives and misleads the public in a matter about which it does not have special information. One of the best statements distinguishing the activities of a professional man from those of a business or trade states:

> There is much more in a profession than a traditionally dignified calling. The term refers to a group of men pursuing a learned art as a common calling in the spirit of a public service—no less a public service because it may incidentally be a means of livelihood. Pursuit of the learned art in the spirit of a public service is the primary purpose. Gaining a livelihood is incidental, whereas in a business or trade it is the entire purpose.

It has been said that a profession licensed under state law does not enjoy prerogatives not granted to other citizens, but rather that it has been entrusted with special responsibilities in regard to the public. The emphasis of the physician should not be upon the rights which he enjoys but rather upon the duties which he has assumed as a professional man.

As noted above, the Code of Ethics does not preclude legitimate health education. The provisions of the Code, however, direct that health education should not be the function of the individual but rather of the organized groups of the osteopathic profession. The Code recognizes this fact by approving of public information or educational programs when conducted

*This is the sixth in a series of short articles on the meaning of ethical standards as applied to the practice of osteopathy; the first three were published in the July, August, and September 1957 issues of THE FORUM OF OSTEOPATHY, and the fourth and fifth in the December and January issues of THE JOURNAL. The A.O.A. Committee on Ethics and Censorship strongly urges the reprinting of these articles, wholly or as excerpts, as they appear from month to month. In all cases, wording should not be changed but reprinted verbatim.

through established and recognized organizations. When thus conducted they reflect the consensus of the members of the profession over the areas or matters about which the public should be informed and not individual opinions. Even here the need for careful preparation of the educational information is emphasized. The basic purpose must be the education of the public concerning health matters and not the promotion of the profession itself or the self-interest of any individual.

Experience has shown that unethical practices in advertising tend to pertain to certain specific types of advertising, such as inviting the attention of persons afflicted with particular diseases; promising radical cures; advertising free examinations; listing diseases treated, methods used, or equipment possessed; or holding forth of oneself as a specialist in a particular field or area when the special professional training and education required for specialization in a field of medicine and surgery is not possessed. These specific acts are enumerated, but not to lessen the strength of the general exclusion that all advertising is incompatible with professional status.

The Code also recognizes that it is difficult to keep abreast of the various practices or conduct which tends to lower the profession in the estimation of the public and to indicate that the profession is not one of a scientific and learned character. Therefore, the Code is amended from time to time as new activities develop which tend to lessen respect for the profession. No Code, however, can cover all of the different areas which must have the attention of ethical practitioners. Nonetheless the Code does, by and large, by setting out the general consensus of the members, reflect the types of conduct which tend to promote and elevate the profession in the minds of the public.

DEPARTMENT OF PUBLIC AFFAIRS

ROY J. HARVEY, D.O., Chairman

Bureau of Public Education On Health

ROSWELL P. BATES, D.O., Chairman

Annual Congress on Medical Education and Licensure

▶ The education of the public concerning the training and licensing of physicians is dependent upon those persons responsible for transmitting the information keeping abreast of modern developments, changes and trends in the education, and licensing systems applicable to physicians. It has frequently been stated that the education of a physician is almost obsolete by the time he graduates from his professional college. How difficult, then, it is for a doctor to feel that he is competent to inform and advise the public concerning professional education and licensing when each year he becomes further and further away from the educational and licensing systems in this country. Each year, therefore, doctors meet and discuss and consider how modern practice and influences are affecting the means by which physicians are trained, the methods by which their practices are regulated under state law, and the need not only for developing basic information for all those concerned but also to organize realistic programs and regulatory measures adapted to modern conditions applicable to the training, education, and practice of physicians.

No meeting in the United States serves this purpose more efficiently than does the Annual Congress on Medical Education and Licensure. The meeting will be held this year February 8 to 11 at the Palmer House in Chicago. It will be the 54th Annual Congress. The sponsors and participants are leading medical organizations, prominent physicians, lay persons, and the officers of state licensing boards. A review of the program indicates the challenges and problems which are recognized as affecting the education and licensing of physicians.

As a part of the program of the component organization, the Federation of State Medical Boards of the United States, the aims, objectives, and procedures in conducting state licensing board examinations in anatomy, pathology, surgery, and bacteriology will be studied. Presentations will be made concerning the problems confronting licensing boards in regard to doctors who become drug addicts. The experiences of one state board in placing physicians on probation will be discussed.

Challenges to modern medical education and the need to focus attention on future needs will constitute a major part of the program relating to education. Discussions will be divided into four parts. One will deal with population characteristics and trends; the second with the changing characteristics of society, and the third with the changing characteristics of our economy and their implications, and the fourth with the changing dimensions of medical knowledge and their implications in medical education. The workshop-conferences on these four subjects affecting medical education namely, population, society, economy, and medical knowledge, will be closed, but reports will be made to the full Congress as a part of the program on Monday afternoon, February 10.

Other matters on the agenda of the Annual Congress relate to undergraduate medical education, problems in specialty training, and the way in which the various specialties have met these problems. The position of the community hospital in regard to graduate medical education is also one of the subjects on the program.

It is difficult to comment upon a program so wide of range in its subject matter and so highly interesting in its content. Any physician who has the opportunity to attend this Congress will find his attendance rewarding. Only through such programs can the general body of information be transmitted to those who are responsible in the fields of education and licensing, who in turn can speak more competently concerning the needs of the public and the profession in the areas of education and licensing of physicians.

Medicine and the law

Prenatal injuries.—An infant injured through the negligence of another person while a fetus in its mother's womb may maintain an action for damages against that person. A fetus injured while *en ventre sa mere* may if it has reached that period of prenatal maturity where it is capable of independent life apart from its mother maintain an action for recovery for such damages, and if the infant dies either in the womb or thereafter such suit may be maintained on its behalf by a personal representative. If the fetus is nonviable at the time of injury

and dies in the womb its representative can maintain no action. *Poliquin v. Macdonald,* (N.H.), 135 A. 2d 249 (1957)

Statute of limitations.—Under Minnesota law, the negligent acts of a physician or a hospital resulting in death give rise to only one cause of action, an action under the wrongful death statute, for which the statute of limitations for filing an action is 3 years. An action arising only out of injuries to a patient by a physician or a hospital is a claim for damages for malpractice. A right of action for malpractice is personal in character, and the statute of limitations for the filing of such suits is 2 years. The right to maintain a malpractice action, being personal in character, expires with the death of the injured person, whether or not the injury resulted in death. *Hackman v. Mayo Clinic,* 150 F. Supp. 468 (1957)

Hospital liability immunity rule abandoned.—The Courts of the State of New York had long followed a rule holding that hospitals under the rule of *respondeat superior* were only liable for the negligence of their employees where the employees were performing an "administrative" act and not a "medical" act. Distinguishing between a medical act and an administrative one had long been most difficult and perplexing. For example, whether a nurse in causing injury to a patient was performing a medical or administrative act brought about decisions based on five distinctions without any rational basis. Hospitals, the court now has said, should shoulder the same responsibilities borne by everyone else. The test should be, for these institutions, whether charitable or profit-making, the same as for every other employer: Was the person who committed the negligent, injury-producing act one of its employees and, if he was, was he acting within the scope of employment? The conclusion was: "We are not required to follow the exemption rule for if adherence to precedent offers not justice but unfairness, not certainty but doubt and confusion, it loses its right to survive, and no principle constrains us to follow it." *Bing v. Thunig,* 163 N.Y.S. 2d 3 (1957)

Headquarters Activities

The 1958 Yearbook and Directory

The 1958 YEARBOOK AND DIRECTORY OF OSTEOPATHIC PHYSICIANS will be ready for distribution at the end of February. This annual publication of the American Osteopathic Association will be about 10 pages longer this year than last because of the increased membership. At press time of the February issue of THE JOURNAL, the membership roll stood at almost 10,000, surpassing last year's record high membership of 9,544.

Throughout the years, the directory has been almost a chronicle of the profession. In the beginning, membership lists were published as supplements to THE JOURNAL. A glance at the first issue, September 1901, reveals that the entire membership, 176, was listed in three pages, even allowing space for the names of the officers, trustees, and standing committees. Representatives of thirty-two states were recorded, and there was even one D.O. in the Hawaiian Islands.

In 1904, the first yearbook was published. Having about the same size pages as the present YEARBOOK AND DIRECTORY, it contained an authoritative list of the profession, 2,984 D.O.'s of whom 620 were A.O.A. members. Members and nonmembers were listed together, with an asterisk identifying members. For the first time, osteopathic physicians were recorded both alphabetically and geographically, indicating that the increased size of the profession necessitated separate categories.

More a yearbook than a directory, this edition concentrated heavily on explaining the new school of medicine and in listing digests of state laws concerning osteopathy. This first attempt by the profession to establish an annual record was evaluated in the 1905 yearbook as a "project [that] lost money but won the approval of every osteopathic physician."

The 1908 directory is considered the prototype of the present directory. It contained the names of 3,939 osteopathic physicians and listed 1,325 members. The names of A.O.A. members were printed in capital letters to distinguish them from those of nonmembers. Compiled from practically new sources, this edition was believed to be more accurate than any previous directory. More a directory than a yearbook, the 1908 edition contained in addition to the lists of osteopathic physicians only the Constitution and Bylaws, the Code of Ethics, and other predirectory information similar to that recorded in present editions. One item not eliminated from this directory and many subsequent ones was the complete legislative digest, considered necessary because the profession was not wholly accepted in every state.

In 1911, the appearance of the directory changed. It was printed in a handy pocket size and was mainly a listing of the 2,514 A.O.A. members. This format was followed until 1930, when the format in use today was adopted. The 1930 directory was a most significant one in the osteopathic story. It contained 7,989 names, 4,654 of A.O.A. members and carried a picture of the new A.O.A. headquarters, the entire twelfth floor of a new Michigan Avenue building. Lists of osteopathic hospitals and clinics filled eleven pages, and four pages of osteopathic publications and books by osteopathic authors were included.

And so the directories have gone on, enlarging as the A.O.A. and the profession have grown. The 1938 directory saw membership reach 5,000. The 1950 directory presented the Andrew Taylor Still Memorial Building, the permanent home of the American Osteopathic Association. The 1958 DIRECTORY, the golden anniversary edition, finds A.O.A. membership at almost 10,000 and stands as a symbol of a responsible, unified organization working to advance the principles of the profession and to maintain the health of the nation.

Members of the Central Office staff who work on the DIRECTORY are still not completely satisfied with their product. They feel that it is indispensable as a reference book but in future years they hope to make it still more useful. A.O.A. members are invited to submit ideas for improvement of the next DIRECTORY any time between receipt of the 1958 edition and the end of the year.

New quarters for Membership

► New quarters for the Membership Department on the third-floor room Central Office were made ready for occupancy recently. This unit completes the original plans for the home of the American Osteopathic Association, according to Walter A. Suberg, Business Manager. The work of this Department, previously located on the first floor, should be greatly facilitated as sufficient room is now available for the ever-increasing number of membership files.

Besides receiving sunlight, the big room is illuminated by indirect lighting coming through translucent panels in the center of the ceiling. Acoustical tiles bordering the ceiling area keep noise at a minimum. The colors of the walls and the tile floor are pleasant and restful.

Other departmental moves have also been made in Central Office. The Busi-

ness Department, formerly located on the second floor, and the Financial Department, previously on the first floor, have been moved to the third floor.

The Division of Public and Professional Service is now located on the first floor in the area formerly occupied by the Financial Department.

The purpose of the relocations is to create the best possible working conditions and to increase efficiency. Since the work of the Membership, Business, and Financial Departments is so closely allied, having them on the same floor eliminates sending materials upstairs and downstairs.

With the completion of the new unit and the departmental relocations, the Central Office is now operating at peak efficiency in handling the needs and requests of the A.O.A. membership and the profession.

Advertising increase

▶ The constantly increasing interest of business concerns in having their products advertised in A.O.A. publications was demonstrated in a recent report from Walter A. Suberg, Business Manager, showing that the gross advertising figure for THE JOURNAL and THE FORUM for the first 7 months of the 1957-58 fiscal year is considerably more than that for the similar period of the past year.

In reporting this information, Mr. Suberg observed that advertising schedules may not continue to increase at this accelerated pace since many business people anticipate a recession and are planning cuts in their advertising budgets.

All in all, the current increase points on the one hand to the buying power of the profession and on the other to acceptance of its worth by medical supply houses.

Report $1,150 in gifts for McCaughan Fund

▶ A gift of $1,000 was recently received from the American College of Osteopathic Surgeons for the Russell C. McCaughan Educational Fund. The money earmarked for the fund honoring the late Executive Secretary of the American Osteopathic Association was forwarded by Dr. Charles L. Ballinger, A.C.O.S. secreary-treasurer. Another $150 was contributed by the New York State Osteopathic Society in January. These two donations bring the total of the McCaughan Fund to $12,050.

The McCaughan Fund was created in 1956 at the time of Dr. McCaughan's retirement as Executive Secretary of the A.O.A. after 25 years of outstanding service. His interest in the education of young osteopathic physicians was basic to choosing the purpose of the Fund which now serves as a fitting memorial. A committee is currently considering appropriate educational use for the contributions that have been received.

Dr. Morrison reports schedule

▶ Dr. Carl E. Morrison, A.O.A. President, has announced the schedule for some of the meetings he will attend this year. In March, he will be at the Eastern Osteopathic Association convention in New York City. April will find him in Albuquerque, N. Mex., and Nashville, Tenn., for meetings of those state societies. During May he will attend the annual conventions of seven divisional societies. This tour will take him to Minneapolis, Minn., Fort Worth, Texas, Tucson, Ariz., Atlanta, Ga., Sacramento, Calif., French Lick, Ind., and Williamsburg, Va. In June, he will be in Seattle, Wash., for the Northwest Osteopathic Convention.

Staff travels

▶ **Dr. Raymond P. Keesecker,** Editor, attended the regional editors' conference of the American Society of Association Executives, January 7 and 8, at Philadelphia. One of eighty association editors at the meeting, Dr. Keesecker reports that the conference certainly gave him many modern and interesting ideas for use in A.O.A. publications. Featured at the meeting were many excellent talks on such subjects as improving magazine readability, recent developments in association periodicals, and new technics of typography, illustrations, and layout.

On January 9 Dr. Keesecker was given a look into the future of the Philadelphia College of Osteopathy, the profession's only eastern college. As the guest of President Frederic H. Barth, the A.O.A. Editor first attended a luncheon at the Union League Club with Dean Sherwood R. Mercer and several members of P.C.O.'s Board of Trustees. Following the luncheon, he visited the Hospital of Philadelphia College of Osteopathy and North Center Hospital of Philadelphia. Then Dr. Keesecker toured the 16-acre area on City Line Avenue, recently purchased by P.C.O. for a $10 million Osteopathic Training and Research Center. This new center will develop P.C.O.'s long-planned "Three C" program—a new campus, a new center, and a new concept—that will make possible teaching, research, and the practice of the art of osteopathic healing all in the same area.

Lawrence W. Mills, director, Office of Education, was in Massachusetts from January 13 to 19. He toured Boston University, Boston College, Northeastern University, Harvard University, and Tufts University for the purpose of meeting with the schools' premedical chairmen and committees. Mr. Mills took with him the progress reports of nineteen former alumni of these schools now attending osteopathic colleges.

On January 18, Mr. Mills stopped in Boston to be a featured speaker at the annual meeting of the Massachusetts Osteopathic Society. In his talk on osteopathic education, he particularly stressed the last decade of progress and plans for the next decade. While in Massachusetts, Mr. Mills helped Mrs. George W. Northup with plans for the organization of an auxiliary to the Massachusetts divisional society. Speaking before a number of doctors' wives he explained that auxiliaries have proved a strong aid to the profession in many vital programs and in public relations in general.

Walter A. Suberg, Business Manager, attended the first annual meeting of the newly organized Professional Convention Management Association in Phoenix, Arizona, January 14 to 17. He was accompanied by his assistant, **Thomas S. Dominick.** Participation in this meeting enabled Mr. Suberg and Mr. Dominick to discuss problems with other individuals having like responsibilities and objectives.

Dr. Clyde C. Henry, director of hospital inspections, inspected hospitals in California and Oklahoma during January. This trip completed Dr. Henry's first year of inspection duty for the A.O.A. Bureau of Hospitals. He started the 1958 inspection program in mid-February. An interesting but difficult job, Dr. Henry's work requires a great deal of stamina as well as ability. His work carries him back and forth across the Nation inspecting hospitals which apply for A.O.A. registration and intern and/or resident training.

P.&P.S. PReviews and PRojects

Exhibits—P.&P.S. will show the A.O.A. traveling exhibit at the March 31-April 3 convention of the American Personnel and Guidance Association at the Sheraton-Jefferson Hotel in St. Louis. About 2,700 vocational guidance counselors, educators, and school administrators are expected to attend the sessions.

The A.O.A. booth will supply information to those persons who advise students the career opportunities in osteopathy and the educational requirements necessary to become a doctor of osteopathy. The booth will be staffed by John J. Hank, P.&P.S. audio-visual director.

Conventions—The division's 1958 convention schedule began in January with P.&P.S. assisting the Massachusetts Osteopathic Society with publicity for its annual meeting. News materials prepared at the Central Office were sent to the society's public relations chairman for his use.

The next meeting currently scheduled for coverage by P.&P.S. personnel is the American College of Osteopathic Obstetricians and Gynecologists convention in February at Denver. Following that is the 26th National Osteopathic Child Health Conference of the Jackson County (Missouri) Osteopathic Association in April at Kansas City.

State meetings in Wisconsin, Texas, Minnesota, Georgia, Indiana, and West Virginia will require the services of Otha W. Linton, P.&P.S. press representative, or other staff members where dates conflict. Requests from other groups for meeting coverage are anticipated.

Awards Contest—The earliest entries in the A.O.A. journalism awards contest for the best newspaper articles about osteopathy have been received. The contest was announced in osteopathic publications and in a letter to editors of newspapers across the country.

A prominent Chicago newsman has agreed to act as the final judge for the contest. He presently serves as an editorial executive of a metropolitan daily paper and also is on the faculty of the Medill School of Journalism of Northwestern University.

TV Series—Demand for the division's "Symptoms of Our Time" television series has been so enthusiastic that it was necessary to purchase eighteen additional prints. Eight sets of the six film series were ordered by divisional societies for use by television stations in their states. Other commitments made by the division and requests for nontelevision uses of the film have made it impossible to fill all requests—a favorable condition, according to Robert A. Klobnak, P.&P.S. director.

Mailing List—The P.&P.S. staff is completing compilation of a corrected mailing list of news editors, science writers, and radio and television news and special events directors. The use of this list will make it possible for information to be given to the correct persons in time for them to make the most efficient use of it.

New brochure in the making

▶ The past, present, and future of osteopathic education will be the subject of a new brochure now being prepared by the Division of Public and Professional Service, according to Dr. True B. Eveleth, Executive Secretary. The purpose of the brochure is to acquaint readers with the osteopathic colleges, their history over the past 10 years, their facilities, their students, their courses of study, and their future plans. Blueprints and architectural sketches of the modern expansion units being planned by the various colleges will be included also.

When completed, the 14- to 16-page brochure will be distributed to businesses, industries, foundations, and philanthropic organizations, so they may see the heights which osteopathic education has reached and plans to ascend.

Much of the material for the new booklet originated in a recent development survey of the colleges, authorized by a directive from the Committee on Development. The survey was conducted by Lawrence W. Mills, director, Office of Education, and G. Willard King, director, The Osteopathic Foundation. Mr. Mills visited five of the colleges, and Mr. King made the survey at the Chicago College of Osteopathy.

Even a brief perusal of the booklet will reveal that the future growth and acceptance of osteopathy are assured.

Current Literature

Problems associated with routine immunizations

▶ NEW INFORMATION relating to disease prevention by immunization demands that existing practices and concepts be appraised and modified, says C. Arden Miller, M.D., in the November 1957 issue of *Postgraduate Medicine*. The problem of whether to use combined vaccine rather than consecutive courses of single antigens has not yet been completely solved, although there is evidence that combined antigens compare favorably with single antigens in safety and effectiveness. A British study now in progress is expected to give a definitive answer to this question. The advantages of alum-precipitated toxoids over fluid preparations are more prolonged antitoxic immunity, greater effectiveness as immunizers against pertussis in early infancy, and less likelihood of systemic reactions by virtue of lower protein content and slower absorption. The disadvantages are a greater delay between injection and immunologic protection and a higher incidence of local reactions. Two mineral carriers, aluminum phosphate and aluminum hydroxide, are even more effective adjuvants than alum, and produce fewer reactions. It seems possible that with newer, more potent toxoids and more effective, less irritating adjuvants the disadvantages cited for vaccines with mineral carriers will be vitiated. Until recently most authorities advocated deferring immunization until at least 6 months of age, on the basis that younger infants were less able to produce antibodies and that the passively acquired (transplacental) circulating antibodies interfered with the development of active immunity. On the basis of newer evidence, it is now the common practice to give the first immunization at the 6-week check-up and to complete the full course of primary immunization, including smallpox vaccination, by 6 months of age. There is good reason for this practice. Very young infants have fewer undesirable reactions to immunizations than do older ones. Further, the mortality and morbidity rates of some diseases are the highest in the first year of life.

In the control of diphtheria the physician faces the paradox of having produced a predominantly susceptible population as the result of immunization programs. When the disease was rampant, the natural booster effect of a large reservoir of in-

fection maintained a high level of immunity. Today a great many children are immunized in infancy, but this immunity is often not maintained. When immunization is done in infancy, a booster injection should be given a year later and thereafter at intervals of 3 or 4 years until the age of 10. After 10, sensitivity and severe reactions are more likely, and a test for sensitivity should be given before administration of the toxoid. Persons over 10 should be given a Schick test every 3 years. It has recently been shown that highly potent diphtheria toxoid in small doses absorbed on aluminum phosphate can induce immunity in nearly all adults with complete safety. This is not yet available commercially. Among the problems of tetanus immunization is the question of how much time can elapse between primary immunization and the giving of a booster for adequate prophylaxis. Experience during World War II showed that there is a good antibody recall after 10 years; however, until there is evidence that tetanus depends on something else than the level of circulating antibody, it seems wise to give a booster every 3 years. In pertussis immunization, a recent extensive study has demonstrated the great effectiveness of the vaccine, and a newly established unit measure of potency should eliminate weak vaccines and reduce reactions by avoiding excessive dosage. Although smallpox vaccination is probably our most effective immunization procedure and is also very safe, certain rare complications may occur. These are generalized vaccinia, vaccinia encephalitis, and vaccinia gangrenosa. The use of hyperimmune vaccinia gamma globulin should be considered for any person suffering these complications. At present, the only claim that can be supported concerning the protective value of Salk poliomyelitis vaccine pertains to the months immediately following immunization. Boosters should be given until such time as they are proved unnecessary. Studies are under way to determine the effectiveness of combined poliomyelitis and DPT vaccines.

Arthrographic studies of the shoulder joint

▶ A STUDY IN WHICH ARTHROGRAMS were made of 96 "problem" shoulders is reported in the December 1957 issue of the *Journal of Bone and Joint Surgery* by Graham A. Kernwein, M.D., Bertil Roseberg, M.D., and William R. Sneed, Jr., M.D. The procedure is simple, safe, and relatively painless. In this series there were no complications. In the 96 shoulders studied, three characteristic arthrographic pictures were found. The first, which has seven distinguishing features and is considered normal, is common to a variety of conditions, including those in which there is no primary shoulder disease. The second is indicative of rupture of the rotator-cuff mechanism and is characterized by an increase in the liquid capacity of the joint as well as by visualization of the subacromial bursa. The third, found only in the presence of organic scapulohumeral fixation, is characterized by an inelastic, nondistensible capsule and by considerable reduction in the size of the joint space; the other characteristics of this picture are normal. If there is a significant discrepancy from normal in the liquid-volume capacity of the joint, if an abnormal communication between the scapulohumeral joint and the surrounding tissues is demonstrated, or if the elasticity of the capsule appears altered, the arthrographic picture may be considered abnormal. The pain-obliteration, abduction strength test was found to be an excellent method for selecting candidates for arthrographic study. The arthrographic findings were correlated with pathologic findings at operation in 54 instances. Of the 35 patients in whom the diagnosis was complete rupture of the shoulder-cuff mechanism, 33 had a demonstrable lesion at operation. Of these 33, 8 had a coexisting complete dislocation of the long head of the biceps, 2 had complete rupture of the biceps tendon, 4 had a calcified supraspinatus, and 3 had a history of recurrent dislocation of the shoulder joint with rupture of the capsule at the glenoidal labrum. Among the conclusions drawn from this study were as follows: Capsulitis is an inflammatory condition infrequently, if ever, associated with rupture of the rotator-cuff mechanism; coexistence of the lesions of the biceps tendon and rotator cuff is common; and coexistence of calcification of the subacromial tissues and rupture of the rotator-cuff mechanism is not uncommon in the presence of reduced abduction strength. The authors feel that arthrography is an unusually accurate and easily interpreted test that provides information that would be unavailable without an exploratory operation.

Clinical experiences with pheochromocytoma

▶ IN THE JANUARY 1958 issue of *Surgery, Gynecology and Obstetrics,* Edward M. Lance, M.D., William R. Cate, Jr., M.D., Grant W. Liddle, M.D., and H. William Scott, Jr., M.D., state that although it is considered a rare tumor, pheochromocytoma is probably more prevalent than is generally believed. Only 300 cases have been reported to date, but it has been estimated that 600 to 800 people die yearly as a result of untreated pheochromocytoma. The authors observed 12 cases in 4 years. Classically, the manifestations are paroxysmal, but this may be expected in only slightly more than 50 per cent of patients. Hypermetabolism is usually, but not necessarily, clinically apparent. Since 1945, indirect pharmacologic tests aimed at altering the effects of the circulating vasopressor substances produced by the tumor have been the chief methods of confirming the clinical diagnosis, but direct estimation of urinary catechol amines should supplement and may eventually supersede the indirect tests, since they are safe and potentially more accurate.

Pheochromocytoma is a treacherous tumor, and delay in surgical treatment may be fatal. In untreated patients, death usually results from cerebral hemorrhage, myocardial infarction, or pulmonary edema. There were no deaths in the authors' series when definitive surgery for preoperatively recognized pheochromocytoma was carried out. There is a much higher mortality rate when patients with pheochromocytoma are subjected to unrelated major surgical procedures; thus surgical treatment of the tumor should take precedence over treatment of coexisting conditions except in extreme emergencies. The anesthesia used should permit rapid induction, adequate oxygenation, and relaxation with minimal vasomotor alterations. These aims can be accomplished with Pentothal sodium induction with nitrous oxide, ether, and oxygen maintenance. The thoracoabdominal approach provides the best exposure of the tumor. When the location of the tumor is uncertain an initial abdominal incision should permit conversion into a thoracoabdominal exposure. Gentle handling of the tumor during removal and immediate availability plus intelligent use of blood pressure regulating drugs are essential. A higher index of suspicion coupled with a more efficient use of diagnostic aids is essential if the salvage rate of this group of potentially curable hypertensive patients is to be raised.

Radiation pneumonitis and fibrosis: a complication of radioiodine treatment of pulmonary metastases from cancer of the thyroid

▶ THE COURSE OF CANCER of the thyroid with pulmonary metastases treated with radioiodine was reviewed in 15 cases by J. E. Rall, M.D., J. B. Alpers, M.D., C. G. Lewallen, M.D., M. Sonenberg, M.D., M. Berman, Ph.D., and R. W. Rawson, M.D. Writing in the November 1957 issue of the *Journal of Clinical Endocrinology and Metabolism,* they say that neither hypothyroidism nor hyperthyroidism seemed to affect the development of pulmonary fibrosis. A dose of more than 100 mc. of radioiodine is apparently necessary to produce discernible changes in pulmonary function and two doses of 100 mc. deposited in the chest at widely spaced intervals are not as likely to be damaging to normal lung tissue as a single dose of 200 mc. In this series radioiodine as I^{131} was given in doses ranging from 107 to 355 mc. There were no permanent hematologic changes, although marked leukopenia and thrombocytopenia were seen in many instances. Treatment of pulmonary insufficiency was in general

disappointing. Of the 15 patients, 2 died from what was presumed to be radiation pneumonitis. In 4 others there was x-ray evidence of pulmonary fibrosis. Nine patients are still alive 1½ to 8 years after I^{131} therapy. From a practical standpoint, the authors evolved the following criteria, which they say are based on rather tenuous evidence. In patients with multiple diffuse pulmonary metastases, the amount of I^{131} irradiation to the chest should not exceed 125 mc. in any single dose. Multiple doses should be separated by at least 6 months. The magnitude of any contemplated dose should be further restricted by hematologic considerations.

The treatment of constipation during pregnancy

▶ THE USUAL PREVENTIVE and remedial measures for constipation often fail during pregnancy because pressure from the gravid uterus interposes mechanical interference to evacuation. Believing that a mild laxative for oral administration would most satisfactorily meet the needs of pregnant women, August F. Daro, M.D., Harvey A. Gollin, M.D., and Ernest G. Nora, Jr., M.D., studied the use of phenolphthalein in 102 cases. In the October 1957 issue of the *American Journal of Gastroenterology,* they state that there was relief from constipation in all of 40 women receiving 2 grains of white phenolphthalein. All of 36 women taking 1½ grains of yellow phenolphthalein and all 30 women who received a capsule containing 1 grain of white and 1 grain of yellow phenolphthalein were relieved of constipation. There were multiparas and primiparas in the group, and none had a history of premature labor, stillbirth, or spontaneous abortion, as far as could be ascertained. After the use of various doses of the laxative, no changes or unusual manifestations of any kind were noted that could be attributed to the drug. The more or less permanent or prolonged relief from constipation experienced by some of the patients may have been due to a "tonic" influence of the drug, resulting in increased peristaltic efficiency of the colon. The authors conclude that phenolphthalein may be safely administered when a laxative must be used in pregnancy, with only the therapeutic discernment necessary in employing any medication at this period.

Hazards and safeguards in the use of parenteral replacement fluids

▶ IN THE OCTOBER 1957 issue of the *Surgical Clinics of North America,* Harvey R. Bernard, M.D., says that physicians must reawaken themselves to the fact that, while parenteral fluid administration is a necessary, simple, and effective technic, it must be used under strict controls to avoid the inherent hazards. Among the hazards associated with preparation and storage of parenteral solutions is contamination with infective material. This problem is complicated by the fact that many parenteral solutions are ideal culture media. Sterilization is further hampered in that some solutions do not withstand the necessary heat. Sterilization of sodium bicarbonate produces undesirable sodium carbonate through elimination of carbon dioxide. Sterilization of blood is impossible. Pooling of plasma increases the danger of infectious hepatitis. This hazard may be overcome by storage at room temperature for 6 months with interval bacterial cultural control prior to infusion. Pyrogenic substances may be retained when parenteral fluid containers are reused but may exist even before such use. Such substances must be removed by thorough cleansing and rinsing to remove the cleanser. Use of disposable containers eliminates retained pyrogens, but care must be taken to insure that no noxious substances used in manufacture remain. Because of the possibility of human error, there should be constant checks on the type and amount of the ingredients in each batch. Errors in technical processing, packaging, and labeling must be prevented by careful checks on each procedure. Evaluation of formulas must be made prior to mixing of ingredients to insure compatibility. The house officer at the bedside who prepares various complicated mixtures must also take this precaution to prevent changes in pH, precipitation, alteration of the therapeutic effect, or production of noxious degradation compounds. Parenteral solutions should be dispensed in batches so that if difficulty is detected with one bottle, the offending batch will be incriminated. Manufacturers should insure through proper labeling, the use of variously shaped containers, or purposeful mismatching of fittings that no solution unsuitable for parenteral use is placed in a container that makes it possible for it to be mistaken for a parenteral solution.

Despite the common use of parenteral fluids, the technic of administration is not without danger and any tendency to permit use without proper supervision is to be decried. Hazards in technical administration include damage due to needle puncture; injury to veins or surrounding tissues by the solution introduced; introduction of infective, pyrogenic, or foreign material; air embolism; and human error and faulty handling of fluid reactions. When the problem concerns the proper selection of a fluid for a specific replacement problem, additional hazards are encountered, varying with the type of fluid administered and with the ailment of the patient. The hazards associated with blood and plasma have to do with the immunologic reactions and the osmotic effect of the protein plus the salt solution vehicle. Each step of the procedure must be checked and rechecked to avoid the possibility of human error. Fluids containing various foodstuffs should be given relatively slowly and the patient should be carefully observed for allergic or febrile reactions. Solutions given to replace extracellular fluid should reflect as nearly as possible the losses in volume and composition. Hypertonic electrolyte solutions should be given only on definite indication and should not exceed 1 molar in concentration. Alkalinizing salts in therapy of acidosis must be given with great care, especially if the serum calcium concentration is low. When fluid combinations are used the greatest danger is that the individual actions will be neglected and either too much or too little effect of the secondary substances will be observed. As the kidney occupies such an important position in the regulation of body fluids, disturbances in renal function lead to special hazards. Among these are overloading of the extracellular fluid compartment, alteration in electrolytic osmolar concentration, and alterations associated with treatment of acid-base balance and specific ionic concentration.

The Stein-Leventhal syndrome

▶ IN 1935, STEIN AND LEVENTHAL were the first to correlate bilateral polycystic ovaries with a definite clinical syndrome that consists of menstrual irregularity, especially amenorrhea, and a history of sterility, in association with bilateral polycystic ovaries. In the December 1957 issue of the *American Journal of Obstetrics and Gynecology,* Rufus P. Ellett, Jr., M.D., and Donald D. Barnes, M.D., point out that menstrual irregularities and sterility are the commonest complaints of the patient. Hypermenorrhea may be severe enough to cause acute anemia or even shock. Hirsutism occurs in about half of these women, and a male escutcheon is fairly common. Obesity is fairly frequent, and underdevelopment of the breasts is infrequently seen. Bilateral and simultaneously enlarged polycystic ovaries are absolutely necessary for a diagnosis of Stein-Leventhal syndrome. Pneumoroentgenography has been successful in demonstrating the enlarged bilateral polycystic ovaries and hypoplasia of the uterus. Culdoscopy has proved of considerable benefit in making a diagnosis in patients with sterility. The etiology of the condition remains obscure, but it has been shown not to be congenital, inflammatory, or degenerative. The most satisfactory treatment appears to be wedge resection of the ovaries. The remaining follicle cysts are perforated and the defect closed with fine catgut. It has been recommended that dilatation and curettage be done on all patients with menometrorrhagia associated with this syndrome to rule out endometrial carcinoma. After wedge resection menstrual periods usually resume within 5 weeks, and pregnancy usually occurs within an average of 5 months. If pregnancy does not occur in a reasonably short time the likelihood of conception is remote.

BOOK REVIEWS

▶ *Books for review which were received during the period from December 5 to January 5 are listed on advertising pages 110 and 111. Reviews of these books will be published as space permits.*

▶ SCHIZOPHRENIA in Psychoanalytic Office Practice. Edited by Alfred H. Rifkin, with 30 contributors. Cloth. Pp. 150. Price $4.00. Grune and Stratton, Inc., 381 Fourth Avenue, New York City 16, 1957.

Schizophrenia is one of the great mysteries of medicine and remains a challenge to the psychiatric arts, although research and competitive thinking have improved the therapy to a point where the disease is no longer a synonym for living death. This volume is a study of psychoanalytic advances in treatment in this condition. Formerly it was felt that psychoanalysis was not indicated but the papers here presented show much change from the old thinking. These papers are from a symposium of the Society of Medical Psychoanalysts and represent the work of thirty contributors, numbering the best known analysts in this country.

The book is divided into three sections. The first in on Concepts, and consists of four papers: "The Nature of Extramural Schizophrenia," "Schizophrenic Consciousness and Practice," "The Conceptual Vicissitudes of the Idea of Schizophrenia," and "Summary of Concepts." The second section, on Special Problems, is handled under two headings: "Transference and Related Problems," and "Anxiety, Panic and Other Problems." The former comprises five papers: "The Constellation of the Schizophrenia," "Love Transference in the Schizophrenic Female Patient," "Combined Psychoanalytic Therapy with Negative Therapeutic Reactions," "Transference and Countertransference," and "Liking and Disliking One's Patients." The latter comprises also five papers: "Anxiety," "Panic," "Suicide," "Hospitalization," and "Family Role in Ambulatory Treatment." The third section, Treatment, includes four papers: "Selection of Schizophrenic Patients for Office Practice," "Treatment of Social Attitudes in Ambulatory Schizophrenic Patients," "Psychic Structure and Therapy of Schizophrenia," and "Summary of Treatment."

Nineteen of the participants are members of the faculties of medical schools and are engaged in the training of medical students. Six on the faculty of the William Alonson White Institutes account for the strong flavor of that Foundation present in this work.

Today there is a concerted attack upon schizophrenia, and this small volume epitomizes a channel along which this effort is being made. Every physician should be informed as to what is happening in this rather large segment of the practice of medicine and this little work would be helpful in that regard.

THOMAS J. MEYERS, Ph.D., D.O.

▶ ANESTHESIA AND OTOLARYNGOLOGY. By Donald F. Proctor, M.D., Assistant Professor of Laryngology and Otology, The Johns Hopkins University School of Medicine; (Associate Professor of Laryngology and Otology, Johns Hopkins 1946-1951; Professor of Anesthesiology, Johns Hopkins (1951-1955). Cloth. Pp. 267, with illustrations. Price $7.00. Williams & Wilkins Company, Mount Royal and Guilford Aves., Baltimore 2, 1957.

This unusual book on anesthesia was written by a man who is a specialist in both anesthesiology and otolaryngology. Twenty chapters cover basic concepts of modern physiologic anesthetic principles as they are related to otolaryngology. A final chapter deals with respiratory resuscitation of the newborn.

Emphasis is placed on proved, conservative anesthetic care. The importance of proper pulmonary ventilation is repeatedly stressed. The following statements are worthy of note:

. . . For safe anesthesia one can never afford to withdraw his attention from the pulse or respiration. . . .

. . . The fact that most otolaryngological procedures are considered minor surgery should not deprive a single one of these patients of all of the safeguards associated with surgical and anesthetic care of the patient being submitted to the most serious operative procedures.

. . . The experienced physician specialist in anesthesia is often staggered by the thoughtlessness of the surgeon who glibly assures the patient that he will receive or not receive some given anesthetic without any thoughtful consideration of the pros and cons of the problem presented by the individual patient. . . .

On page 30 is an illustration of a child undergoing induction of anesthesia with a stethoscope taped over the precordial area for continual monitoring of cardiac action. The reviewer has been using this precaution for years and can attest to its value.

This book, while comparatively high in cost, should be in the library of the practicing otolaryngologist and anesthesiologist and should be required reading by those preparing for these two specialty fields.

A. A. GOLDEN, D.O.

▶ THE PHYSICIAN'S OWN LIBRARY. Its Development, Care and Use. By Mary Louise Marshall, Librarian, Rudolph Matas Medical Library, Tulane University; Assistant, Orleans Parish Medical Society Library, New Orleans, Louisiana. Paper. Pp. 87. Price $3.00. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1957.

This little monograph is highly recommended, especially to every student physician from his first year in medical school through his internship and residency and to those young physicians whose libraries are no more than an accumulation of books because their purchases have not been wisely planned. Before the reader turns aside this reviewer's suggestion that he buy the book on the basis that it is a "plug" not pertinent to the reader, he is asked to read the editorial comment on the monograph which will be found on page 395 of this issue of THE JOURNAL.

▶ MODERN PERINATAL CARE. By Leslie V. Dill, M.D., F.A.C.S.; Diplomate of the American Board of Obstetrics and Gynecology; Associate Clinical Professor, Obstetrics and Gynecology, Georgetown University School of Medicine; Consultant, Obstetrics and Gynecology, Army Medical School and Walter Reed General Hospital; Staff Member, Obstetrics and Gynecology, Providence Hospital, Washington, D.C. Cloth. Pp. 309, with illustrations. Price $6.50. Appleton-Century-Crofts, 35 West 32nd Street, New York 1, 1957.

This concise digest of modern concepts and technics for obstetric care is recommended to the profession.

After a brief history of obstetrics and the reduction of maternal and infant mortality through practice of its modern form, the author conducts the patient through each phase of pregnancy, from its inception to the close of the postpartum period. The reader is offered some methods for both routine and emergency care that should prove valuable to those having little or no access to elaborate hospital facilities.

The two closing chapters of the book comprise a discussion of the medicolegal problems of obstetric practice and the ethics of the Catholic church as they pertain to obstetric care.

(Continued on page 430)

ADVISORY BOARD for Osteopathic Specialists and Boards of CERTIFICATION

Advisory Board for Osteopathic Specialists

THOMAS J. MEYERS, D.O.
Chairman

SEVERAL SPECIALTY BOARDS in osteopathic medicine were in the process of formation prior to 1939 and the demand for others was recognized. Osteopathic specialists and the osteopathic profession felt the need of a single authoritative agency to define graduate education, establish minimum standards that would be basic to such education, furnish information on procedure to the specialty groups, coordinate their efforts, and protect the public by giving validity to certification. To meet these needs, the Advisory Board for Osteopathic Specialists was organized in 1939 by authorization of the Board of Trustees of the American Osteopathic Association. The Advisory Board rendered immediate assistance to existing specialty groups in their efforts to initiate and maintain minimum standards of graduate education against the time when individuals in various specialties would be prepared for certification. It helped in the establishment of additional boards of certification as the growth of specialties within osteopathic medicine demanded.

Certifying boards need assistance in determining the standards of fitness and ability of each applicant for certification as a specialist, they require guidance in defining the scope of the several accepted specialties, and they need advice in establishing standards of education and training for these specialties. An authoritative agency of the Board of Trustees of the American Osteopathic Association is required to maintain a cooperative effort between the certifying boards and educational and training-hospital groups, in order that graduate educational facilities will be constantly available to students in the various specialty fields. By the creation of an advisory board it was possible to obviate duplication of effort, to promote uniformity in the methodology of certification, to prevent unofficial groups from assuming the right of certification, and to inform the profession at large of the significance of specialty certification and its relation to the general practitioner.

The Advisory Board is composed of the secretaries of the approved certifying boards and one other appointed representative from each of the boards, two representatives of the Board of Trustees of the American Osteopathic Association, and representatives from such other national groups as are interested in the education, examination, and certification of osteopathic specialists.

Member organizations comprising the Advisory Board of Osteopathic Specialists are twelve boards of specialty certification, the Board of Trustees of the American Osteopathic Association, the Bureau of Professional Education and Colleges, the Bureau of Hospitals, the American Association of Osteopathic Colleges, and the Central Office of the American Osteopathic Association. The voting membership totals 30.

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K. J. Davis

Review Committee (six members):
Appointed annually not later than 30 days before the time of annual meeting.

Appeal Committee (five members):
Appointed when deemed necessary by the Chairman of the Advisory Board with the approval of the Executive Committee.

Committee on Basic Documents:
K. J. Davis, Chairman
Glennard E. Lahrson

REVISED RULES OF ORGANIZATION AND PROCEDURE

ARTICLE I

Sec. a. The name of this body shall be the Advisory Board for Osteopathic Specialists.

Sec. b. This Advisory Board is constituted and functions under the auspices of the Board of Trustees of the American Osteopathic Association to which it serves as an advisory body and from which it receives authority to engage in those activities necessary to fulfill its purposes. Actions of this Board to have effect must be approved by the Board of Trustees of the American Osteopathic Association.

ARTICLE II—PURPOSES AND DUTIES

The purposes and duties of this Board shall be the following:

Sec. a. To assist in the establishment of certifying boards which shall determine the fitness and ability of each applicant for certification as a specialist in a distinct and recognized specialty.

(1) To be accepted as a certifiable field of specialization such specialty must be accurately definable, must be represented by a reasonable number of individuals who confine themselves or give the preponderance of their time to practice within the defined field; the technics practiced within the field shall be adequate to care for the majority of cases within the field defined; it shall be a field in which knowledge of the entire range of possibilities is a basic qualification and in which only the unusual case calls for special technics not included within the definition and where the practitioner within the field is required to be competent to decide upon the need for special technics.

(2) The definition which is included for the specialty shall be stated so as to delineate accurately the scope of practice properly embraced by the specialty.

Sec. b. To advise the specialty certifying boards with reference to defining and determining the scope of the several accepted specialties.

Sec. c. To advise the specialty certifying boards with reference to establishing appropriate standards of education and training for the several specialties and coordinating the requirements for certification by the certifying boards.

Sec. d. To advise the certifying boards in reference to the development of an appropriate modus operandi for determining fitness of applicants for certification.

Sec. e. To receive from certifying boards proposals relating to their organization and activities and transmit these with appropriate recommendations to the Board of Trustees of the American Osteopathic Association.

Sec. f. To provide for the certification of applicants in distinct and recognized specialties in which there is no organized specialty society in the profession and no certifying board.

Sec. g. To review the proposals for certification received from the certifying boards and make recommendations concerning each proposal to the Board of Trustees of the American Osteopathic Association for its action.

Sec. h. To maintain contact with the activities of the certifying boards in order to ascertain their conformity to the standards and procedures adopted and to advise them when indicated regarding corrections in their procedures. If necessary, the Advisory Board shall make appropriate recommendations to the Board of Trustees of the American Osteopathic Association when any certifying board persists in failing to conduct its affairs in an acceptable manner.

Sec. i. To cooperate with the Executive Secretary of the American Osteopathic Association in maintaining an accurate listing of certified specialists in good standing.

Sec. j. To assist in educating the profession at large concerning the significance of specialty certification and its relation to the general practitioner.

Sec. k. To respond in an advisory capacity to any group within the profession in matters pertaining to the recognition or declaration of specialization.

Sec. l. To cooperate with the Bureau of Professional Education and Colleges, the Bureau of Hospitals, and the American Osteopathic Association in creating and standardizing specialty training programs and in establishing the principle of certificaton in the personnel of the organizations coming under its jurisdiction.

Sec. m. To keep a record of all meetings, transactions, and actions of the Advisory Board and maintain in an appropriate form a cumulative compilation of recommendations of this Board to the Board of Trustees of the American Osteopathic Association.

The original stenographic notes of the proceedings of the Advisory Board shall be filed as the legal record of the minutes of the Advisory Board. The edited minutes shall be considered legal after approval by the Advisory Board except in instances of question as to original intent and purpose, when the original record shall become a part of the final document of record.

Sec. n. To establish and maintain a file of the constitutions and bylaws of all approved certifying boards together with their amendments, cumulative lists of their memberships, cumulative lists of those certified by each certifying board, and record the standing of each certificate holder.

ARTICLE III—MEMBERSHIP

Sec. a. The membership of the Advisory Board for Osteopathic Specialists shall consist of those designated ex-officio members together with the secretary-treasurers of the several approved certifying boards and one other appointed representative from each of the certifying boards and representatives from each of the following groups as indicated below, appointed by its chairman or president:

(1) Board of Trustees of the American Osteopathic Association—two representatives.
(2) Bureau of Professional Education and Colleges—two representatives.
(3) Bureau of Hospitals—two representatives.
(4) American Association of Osteopathic Colleges—two representatives.
(5) Central Office—American Osteopathic Association—one representative. The Executive Secretary of the American Osteopathic Association shall appoint one osteopathic physician from Central Office to serve as a member of the Advisory Board.

Sec. b. Member organizations shall make their appointments within 60 days following each annual meeting of the American Osteopathic Association and the appointments shall be communicated promptly to the Executive Secretary of the American Osteopathic Association and to the Secretary of the Advisory Board.

Sec. c. Each member organization is entitled to two votes, but in no case may a member organization be entitled to vote without a duly authorized representative being present. Both votes may be cast by one representative in the absence of the other. The representative of the Central Office shall have no vote.

Sec. d. Alternates may be accepted as members if they are designated by the appropriate member organization officer and their names are in the hands of the Executive Secretary of the American Osteopathic Association and the Secretary of the Advisory Board for Osteopathic Specialists before the time of the annual meeting of the Advisory Board.

Sec. e. When one individual is named by two different member organizations as a representative, the appointing officer whose appointment was last received shall be informed of the previous appointment of the individual by another member organization so that his appointment may be changed if desired.

Sec. f. When an ex officio member of the Advisory Board is appointed as a representative of a member organization, he shall vote in the capacity as such a representative. If he is an Advisory Board member ex officio only, he may vote as an individual.

Sec. g. Any organization which holds membership on the Advisory Board and which does not have its representatives in attendance for two consecutive years shall have its membership on the Advisory Board revoked.

ARTICLE IV—OFFICERS

Sec. a. The officers of this Board shall be Chairman, Vice-Chairman, and Secretary.

Sec. b. The Chairman shall be elected at each alternate annual meeting for a term of 2 years from those who are members at the time of election.

In the event of his not being a member of the Advisory Board under the provisions of Article III, Sec. a, during the period for which he is elected, he shall continue a member for the term of his office.

He shall appoint all committees, excepting as otherwise provided, serve as an ex officio member of all standing committees, making the prescribed reports, preside at all meetings of the Advisory Board, act as Chairman of the Executive Committee, and perform such other duties as customarily reside in the office.

In the event a certifying board for any reason ceases to function, he shall assume temporary chairmanship of that Board with restricted powers to maintain its operating continuity until the next meeting of the Advisory Board. In this capacity, he shall arrange for the evaluation of candidates' credentials and for their examination, but shall not himself evaluate or examine.

He shall make an annual and a midyear report of the Advisory Board's activities to the Board of Trustees of the American Osteopathic Association.

Sec. c. The Vice-Chairman shall be elected at each alternate annual meeting for a term of 2 years from those who are members at the time of the election.

He shall be a member of the Advisory Board at the time of his election and shall be a member ex officio during the term for which he is elected.

He shall perform the duties customarily resident in this office.

Sec. d. The Secretary shall be elected every third year for a term of 3 years from those who are members at the time of the election.

He shall be a member of the Advisory Board ex officio during the term for which he is elected.

He shall keep a record of all meetings, transactions, and actions of the Advisory Board and assist the Chairman in such other duties as are appropriate to this office.

Sec. e. In the event of a vacancy in the office of the Chairman and Vice-Chairman, the senior member of the two members at large elected to the Executive Committee, shall act as Chairman until the next regular meeting.

ARTICLE V—COMMITTEES

Sec. a. The Executive Committee shall be composed of the Chairman, Vice-Chairman, Secretary, and two members of the Advisory Board.

One such member from the Advisory Board shall be elected each year for a term of 2 years.

Elected members of the Executive Committee shall be members ex officio of the Advisory Board through the terms for which they are elected.

This committee shall carry out the policy and activity initiated or decided by the Advisory Board. The Executive Committee shall meet on call of the Chairman.

The Executive Committee shall act for the Advisory Board between meetings of the Advisory Board. All actions of the Executive Committee shall be subject to approval of the Board of Trustees of the American Osteopathic Association.

Sec. b. A Review Committee composed of six members shall be appointed by the Chairman not later than 30 days before the time of the annual meeting, or special meeting, from among members who affirm their intent to be in attendance at the meeting, for a term of 3 years, two of whom shall be appointed each year to serve a term of 3 years. During the first year two shall be appointed for 1 year, two shall be appointed for 2 years, and two shall be appointed for 3 years. The Chairman of the Advisory Board shall appoint one member to act as Chairman of the Review Committee. This Committee shall review the data supporting proposals for certification submitted by the Certifying Boards and make recommendation to the Advisory Board concerning the proper action on each candidate proposed.

Names of the candidates who fail to meet the requirements of the Review Committee shall not be presented to the Advisory Board.

Sec. c. A Nominating Committee composed of three members shall be appointed by the Chairman at the time of the annual meeting to name candidates for officers for the ensuing year and to report to the last session of the meeting, at which time election of officers shall take place. Nominations from the floor will be in order.

Sec. d. An Appeal Committee shall be selected and appointed by the Chairman of the Advisory Board, with the approval of the Executive Committee whenever it is deemed necessary by the Chairman of the Advisory Board to provide for adjudication of a charge filed with the Advisory Board of unfairness or improper conduct of the affairs of any certifying board by an applicant for certification.

The Appeal Committee shall be composed of five members, who shall elect their own chairman, one individual to be appointed from the Bureau of Professional Education and Colleges; one from the Bureau of Hospitals; one from the Board of Trustees of the American Osteopathic Association; and two from the membership of the Advisory Board for Osteopathic Specialists, no one of whom shall be a member of the certifying board which is the object of complaint.

All appeals shall be filed with the Chairman of the Advisory Board not later than April 1. Copies of the written appeal and submitted material shall be provided to the Committee at least 30 days prior to its next scheduled meeting.

The meeting, or meetings, of the committee shall be arranged by the Chairman of the Appeal Committee with the complainant and a representative appointed by the chairman of the certifying board involved. A stenotype record of the proceedings shall be made, and such notes shall be confidential.

After hearing and considering the presentation of the complaint and the certifying board's response giving reasons for the action against which the complaint is directed, and after making any necessary investigation, the Appeal Committee shall make a report to the Advisory Board for Osteopathic Specialists, indicating what the Committee considers to be the proper action to be followed by the parties concerned. If the controversy is not suitably adjudicated and the circumstances justify, the report of the Appeal Committee shall be presented to the Board of Trustees of the American Osteopathic Association for further action.

This committee shall be dissolved upon conclusion of the duties specified above.

Sec. e. A Committee on Basic Documents shall be appointed by the Chairman of the Advisory Board for Osteopathic Specialists at each annual meeting. For the purposes of this Committee, the basic documents shall be defined as the Constitution and Bylaws, Regulations and Requirements of the specialty certifying boards, and the Manual of Procedure for the Advisory Board for Osteopathic Specialists and Boards of Certification.

The duties of this committee shall be:

(1) To maintain a file of all basic documents of the Advisory Board and its member certifying boards.

(2) To prepare and submit to the Advisory Board amendments to the Manual of Procedure for the Advisory Board for Osteopathic Specialists and Boards of Certification.

(3) To review the basic documents of the specialty certifying boards and recommend proposed changes in these documents as may be necessary to establish conformity with the Manual of Procedure for the Advisory Board for Osteopathic Special-

ists and Boards of Certification, as approved by the Board of Trustees of the American Osteopathic Association.

ARTICLE VI—MEETINGS

Sec. a. A regular annual meeting shall be held at the time and place of the annual convention of the American Osteopathic Association. The meeting shall be scheduled at such time that recommendations from this Advisory Board may be transmitted to the Board of Trustees of the American Osteopathic Association before the conclusion of its final sessions. The time and place of the sessions of the Advisory Board's meeting shall be communicated to all members not less than 30 days before the date of convening.

Sec. b. A quorum at any session of any regular meeting shall consist of a majority of the designated membership of the Advisory Board, and at least one-third of the member organizations shall be represented.

Sec. c. Robert's Rules of Order shall be followed except where they conflict with these rules of procedure.

Sec. d. The order of business shall be as follows:

(1) Call to order.
(2) Roll call.
(3) Secretary's report including:
  (a) Presentation of the report to the Board of Trustees of the American Osteopathic Association made at the preceding annual meeting.
  (b) Presentation of the Chairman's preliminary report to the Board of Trustees of the American Osteopathic Association, and the recommendations for the current session of the Advisory Board.
(4) Appointment of Nominating Committee.
(5) Reports and recommendations of certifying boards.
(6) Reports of standing committees.
(7) Reports of special committees.
(8) Unfinished business.
(9) Receipt of communications.
(10) Report of Review Committee.
(11) New business and assignments to appropriate committees.
(12) Report of Nominating Committee and election of officers.
(13) Appointment of committees for ensuing year.
(14) Adjournment.

ARTICLE VII—AMENDMENTS

Sec. a. Amendments to these Rules of Organization and Procedure may be adopted for submission to the Board of Trustees of the American Osteopathic Association for approval by the vote of a majority of the members of the Advisory Board registered with the Secretary as present at the annual meeting, provided the proposed amendment has been submitted to each member present in writing or printed form not less than 12 hours preceding the time of the meeting at which the vote is to be taken.

Sec. b. A Manual of Procedure for the Advisory Board for Osteopathic Specialists and Boards of Certification shall be issued by Central Office within 90 days following adoption of this recommendation by the Board of Trustees. It shall contain the following:

(1) Rules of Organization and Procedure of the Advisory Board for Osteopathic Specialists as amended with the approval of the Advisory Board and the Board of Trustees.

(2) Rules of Procedure for specialty certifying boards as amended with the approval of the Advisory Board and Board of Trustees.

(3) Standard Constitution and Bylaws of Boards of Certification as approved by the Board of Trustees.

(4) Model form for Regulations and Requirements of Boards of Certification.

(5) Model form Outline for Annual Report of Secretaries of Certifying Boards to the Advisory Board.

Sec. c. The documents listed under Section b above shall be edited, rearranged, and revised, without changing the intent, to provide better phraseology and continuity. Repetitions shall be deleted.

Sec. d. Three hundred copies of the Manual shall be issued. They shall be distributed to the Executive Committee of the American Osteopathic Association, officers and members of boards of certification, and to other individuals who have a right to the Manual.

Sec. e. The Manual shall be revised every 2 years, and the revisions shall include recommendations of the Advisory Board which have been approved by the Board of Trustees since the preceding issue of the Manual pertaining to the conduct of the Advisory Board, boards of certification, and applicants for certification.

Sec. f. All recommendations which amend or in any way alter any of the documents reproduced in the Manual shall be presented as amendments with proper reference to the document, article, section, and paragraph.

Boards of Specialty Certification

STANDARD CONSTITUTION AND BYLAWS

(Approved by the Board of Trustees of the American Osteopathic Association, July, 1948)

CONSTITUTION
of the
AMERICAN OSTEOPATHIC BOARD OF.....

ARTICLE I—NAME

The name of this organization shall be The American Osteopathic Board of .....

ARTICLE II—PURPOSE

Sec. 1. The purposes of this Board shall be:

(a) To define the qualifications to be required of osteopathic physicians for certification in the field (or fields) of ..... and of any other specialty field that may be assigned to this Board.

(b) To determine the qualifications of osteopathic physicians as specialists for certification in the field (or fields) of ..... and of any other specialty field that may be assigned to it.

(c) To conduct examinations in conformity with the Bylaws of this Board.

(d) To issue certificates, subject to the recommendation of the Advisory Board for Osteopathic Specialists and to the approval of the Board of Trustees of the American Osteopathic Association, to those physicians who are found qualified.

(e) To recommend revocation of certificates for cause.

(f) To use every means possible to maintain a high standard of practice in these specialties (this specialty) within the osteopathic profession.

The actions of the American Osteopathic Board of ..... are subject to the recommendation of the Advisory Board for Osteopathic Specialists and to the approval of the Board of Trustees of the American Osteopathic Association.

ARTICLE III—DEFINITION

Sec. 1. For the purpose of the operation of this Board the following division(s) of practice is (are) defined:

(a) The practice of ..... shall consist of and include .....

.....

(b) The practice of ..... etc., etc.

ARTICLE IV—ORGANIZATION

Sec. 1. Membership.

(a) The American Osteopathic Board of ..... shall consist of ..... members elected by .....

.....

Each elected member shall be a certified specialist in good standing in .....

(Each specialty group shall be represented in the membership

of the Board .....) Insofar as possible there shall be a representative from each geographical time belt of the United States on this Board.

(b) Members shall be elected for a term of 3 years (except that at the first election of members to this Board three members shall be elected for 3 years, three shall be elected for 2 years, and three for 1 year. Thereafter, three members shall be elected annually for the full term of 3 years.) The terms of members should be so staggered that the new members elected in any year shall not constitute a majority of the Board. In case of death or resignation of any Board member, ... shall appoint a certified specialist from the corresponding field to fill the unexpired portion of the term.

(c) Members shall continue to serve until their successors are elected.

Sec. 2. Officers.

(a) The officers of this Board shall be:

(i) Chairman.
(ii) Vice-Chairman.
(iii) Secretary-Treasurer.

(b) These officers shall be elected by this Board for a term of 1 year at its annual meeting.

(c) Officers shall continue to hold office until their successors are elected.

Sec. 3. Committees.

(a) There shall be three standing committees of this Board and such other committees as may from time to time be authorized. The Chairman shall appoint all committees unless it is otherwise provided.

(b) The standing committees shall be:

(i) Credentials Committee.
(ii) Examination Committee.
(iii) Advisory Board Committee.

ARTICLE V—AMENDMENT

Sec. 1. Subject to the review and recommendation of the Advisory Board for Osteopathic Specialists and the approval of the Board of Trustees of the American Osteopathic Association this Constitution may be amended by a vote of two thirds of the total membership of this Board (or three fifths in a five-member Board) at any annual meeting following notification given at any previous annual meeting of such intention.

BYLAWS of the AMERICAN OSTEOPATHIC BOARD OF.....

ARTICLE I

DUTIES OF THE AMERICAN OSTEOPATHIC BOARD OF .....

Sec. 1. This Board shall serve as an advisory body to all applicants for certification in the specialty (specialties) of ..... and any other specialty which may be assigned to its jurisdiction.

Sec. 2. This Board shall determine, in accordance with the provisions of these Bylaws, the appropriate standards of education and the training held necessary for certification in the specialty (specialties) of ..... and of any other specialty which may be assigned to its jurisdiction, subject to the recommendations of the Advisory Board for Osteopathic Specialists and to the approval of the Board of Trustees of the American Osteopathic Association.

Sec. 3. This Board shall establish detailed rules for conducting all examinations in compliance with the provisions of these Bylaws and shall provide for the conduct of examinations at least once a year in accordance with its Regulations and Requirements.

Sec. 4. This Board shall file with the Advisory Board for Osteopathic Specialists, at the time specified by the Advisory Board, its recommendations concerning each applicant for certification together with any pertinent information required by the Advisory Board for Osteopathic Specialists.

Sec. 5. This Board shall provide and issue certificates in all fields assigned to this Board's jurisdiction, as provided in Article V of these Bylaws.

Sec. 6. This Board shall provide permanent files for all records. It shall record and keep permanently on file all applications submitted to it and complete records of examination results and shall maintain a registry of certificate holders. All examination papers and case reports of applicants shall be kept on file for a period of 3 years.

Sec. 7. This Board shall levy and collect from applicants the funds necessary to finance the operation of this Board as provided in the Regulations and Requirements.

Sec. 8. This Board shall arrange for all meetings necessary to enable this Board to carry out its functions as provided in Article VI, Sections 1 and 2 of these Bylaws.

Sec. 9. This Board shall provide two members of this Board to function as representatives to the Advisory Board for Osteopathic Specialists. One of the two members shall be the Secretary-Treasurer. In case of inability of the regular representatives to attend the sessions of the Advisory Board for Osteopathic Specialists, the Chairman of this Board shall appoint alternates as provided in the Rules of Organization and Procedure of the Advisory Board for Osteopathic Specialists.

Sec. 10. This Board shall conduct its activities in relation to the officers of the American Osteopathic Association, the Advisory Board for Osteopathic Specialists, other certifying boards, and applicants for certification as provided in the Rules of Procedure for Specialty Certifying Boards compiled by the Advisory Board for Osteopathic Specialists and approved by the Board of Trustees of the American Osteopathic Association.

Sec. 11. This Board shall make, in conformity to its Constitution and Bylaws, all necessary regulations and requirements to govern its activities which are not provided by the Advisory Board for Osteopathic Specialists and the Board of Trustees of the American Osteopathic Association.

ARTICLE II—COMMITTEES

Sec. 1. Credentials Committee.

(a) There shall be a Credentials Committee of ..... members appointed by the Chairman of this Board, whose members shall represent different geographical districts so far as possible.

(b) It shall be the duty of the Credentials Committee:

(i) to receive all completed applications from the Secretary-Treasurer;
(ii) to conduct a comprehensive investigation of each applicant in accordance with the rules governing application;
(iii) to prepare a recommendation concerning each applicant and present this to the American Osteopathic Board of ..... at its next (annual) meeting.

Sec. 2. Examination Committee.

(a) There shall be an Examination Committee composed of the Chairman of this Board and not less than two additional Board members. The Chairman of this Board shall act as the Chairman of the Examination Committee.

(b) It shall be the duty of the Examination Committee to plan and to make preparations for the conduct of examinations in the special fields coming under the jurisdiction of this Board in accordance with the rules governing examinations as stated in Article IV, Section 1, Paragraph (h) of these Bylaws and in the Regulations and Requirements of this Board.

(c) The Examination Committee shall report to this Board the findings on the examination of each applicant.

Sec. 3. Advisory Board Committee.

(a) There shall be an Advisory Board Committee consisting of the Chairman and the Secretary-Treasurer of this Board.

(b) It shall be the duty of the Advisory Board Committee to represent the American Osteopathic Board of .... in all matters where such representation is required.

(c) The Chairman shall annually appoint as an alternate member of this Committee a member of the Board of .... who shall be empowered to act for either regular member who is not in attendance.

ARTICLE III—DUTIES OF OFFICERS

Sec. 1. The duties of the Chairman shall be:

(a) to preside at all meetings;

(b) to appoint all committees and representatives to the Advisory Board for Osteopathic Specialists;

(c) to schedule meetings of this Board at such times and places as necessary to carry on the business of this Board;

(d) to supervise all examinations;

(e) to act as an ex officio member of all committees;

(f) to sign all certificates issued by this Board;

(g) to act as Chairman of the Examination Committee;

(h) to be a member of the Advisory Board Committee.

Sec. 2. The duties of the Vice-Chairman shall be:

(a) to assume the duties of the Chairman when the latter is absent or otherwise unable to fulfill them;

(b) to assist the Chairman in the discharge of his duties.

Sec. 3. The duties of the Secretary-Treasurer shall be:

(a) to keep on permanent file records of all proceedings, transactions, and rulings of this Board, and to keep on file all examination papers and case records for a period of 3 years;

(b) to have printed and distributed all certificates, application forms, circulars of information, etc., authorized by this Board and necessary for the proper functioning of this Board;

(c) to maintain in proper place and form the moneys of this Board and to issue an accounting of them at annual meetings or at such other times as requested by the Chairman of this Board;

(d) to keep a permanent file of all applications coming before this Board with a signed record of the action taken on each;

(e) to maintain a record of all certificate holders in good standing and to supply upon request to governmental agencies, hospitals, physicians, schools, and others entitled to such information, a list of holders of certificates in good standing;

(f) to have prepared in appropriate and complete form for presentation to the Review Committee of the Advisory Board for Osteopathic Specialists in support of recommendations for certification the application, examination record (written, oral, and practical), and other pertinent information requested; (See Rules of Procedure.)

(g) to serve as a representative of this Board to the Advisory Board for Osteopathic Specialists;

(h) to sign all certificates issued by this Board, as provided in Article V;

(i) to prepare an annual report in keeping with the Rules of Procedure for Specialty Certifying Boards of the work done by this Board, including a list of all applicants and the results of their examinations and a resume of the Board's finances. This report is to be presented at the annual meeting of the Advisory Board for Osteopathic Specialists and copies are to be supplied to the Chairman and Secretary of the Advisory Board and to the Executive Secretary of the American Osteopathic Association;

(j) to cooperate with the Executive Secretary of the American Osteopathic Association in all matters pertaining to the annual registration of certificate holders;

(k) to notify the Executive Secretary of the American Osteopathic Association and the Chairman and Secretary of the Advisory Board for Osteopathic Specialists of members and officers elected to this Board and of appointments to the Advisory Board for Osteopathic Specialists.

ARTICLE IV—REQUIREMENTS FOR CERTIFICATION

Sec. 1. To be eligible to receive a certificate of specialization from the American Osteopathic Board of ..... the applicant must meet all of the following minimum requirements, excepting as provided in Section 3 (and Section 4) of this Article:

(a) He must be a graduate of an approved osteopathic college.

(b) He must be licensed to practice in the state or territory where he conducts his specialty practice.

(c) He must have been a member in good standing of the American Osteopathic Association and of his state or divisional society for a continuous period of at least 3 years immediately prior to application for examination by this Board.

(d) He must have satisfactorily completed an internship of at least 1 year in a hospital approved for intern training by the American Osteopathic Association or satisfactory to this Board. If graduated in 1942 or prior thereto, the applicant must have had training of value equivalent to that of an acceptable internship as determined by this Board.

(e) He must be able to show evidence of conformity to the standards set in the Code of Ethics of the American Osteopathic Association.

(f) A period of not less than 3 years of special training related to the specialty shall be required, after the required 1 year of internship, or its equivalent, but not necessarily running 3 consecutive years. This Board may modify the requirement of 3 years' special training by allowing a credit of 1 year of special training for each 5 years of specialty practice for a total credit of not to exceed 2 years of the requirement, for physicians who graduated prior to 1946, but in no case may such applicant be accepted for examination without at least 1 year of special training as defined. This training shall include:

(i) Advanced study in the sciences: Anatomy, physiology, biochemistry, pathology, pharmacology, and such other basic sciences as are necessary to a mature and comprehensive understanding of the prevention, diagnosis, therapy, and management of the disorders involved in the specialty.

(ii) Active experience in the diagnosis and treatment in such amount and diversity that it will assure adequate training in the specialty.

The special training may be provided in colleges, laboratories, clinics, hospitals, or other facilities satisfactory to this Board, or by serving an acceptable assistantship to or studying under the preceptorship of a qualified specialist in this field, supplemented by prescribed study conforming to a plan approved by this Board.

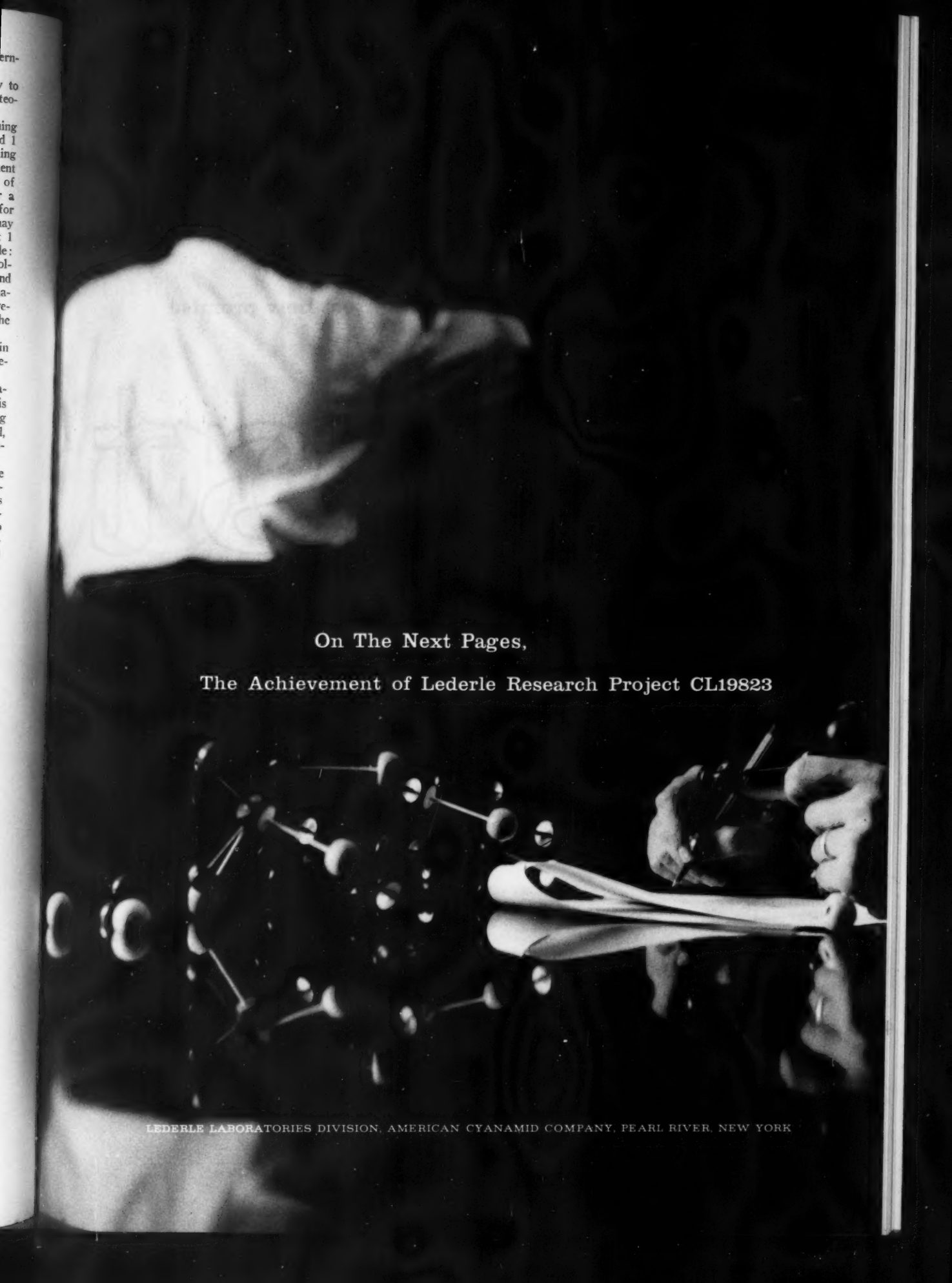
The minimum 3-year period of special training may be made up of varying combinations of the several types mentioned above, as determined by this Board. It shall be this Board's duty to assist applicants in determining a suitable program of special training, but it is not this Board's function to supply the training. This Board will recognize as proper institutions for securing this training those institutions which are approved for special training by the approving agencies of the American Osteopathic Association, together with such others as this Board may determine to possess facilities and personnel adequate to provide proper training.

(g) He must practice as a specialist in his field for a period of at least 2 years subsequent to the minimum 3 years of special training. Specialty practice within each specialty field under this Board shall be defined in the Regulations and Requirements of this Board.

(h) Following satisfactory compliance with the prescribed requirements as to special training and specialty practice, the applicant shall be required to pass appropriate examinations planned to evaluate his understanding of the scientific bases of the problems involved in the specialty, his familiarity with the current advances in the specialty, and the possession of sound judgment and of a high degree of skill in the diagnostic and therapeutic procedures involved in the practice of the specialty. Oral, written, and clinical examinations shall be conducted and required in the case of each applicant. This Board may conduct the oral and written examinations at the end of the required 3 years of special training, but shall not conduct the practical or clinical examination until the required 2 years of specialty practice have been completed. The members of this Board shall personally review, if not perform, the grading of each written examination. The conduct of the clinical examinations may be delegated to committees of not fewer than two individuals maturely qualified in the specialty. A full description of the method of conducting the examination shall be formulated in this Board's Regulations and Requirements, and provision for reexamination shall be made.

(i) Applicants desiring examination for certification shall be required to file an application which shall set forth the applicant's qualifications for examination as stated in paragraphs (a), (b), (c), (d), (e), (f), and (g) above. The procedure for filing applications shall be set forth in the Regulations and Requirements and no application for action at any annual meeting of this Board shall be accepted after April 1st of that year.

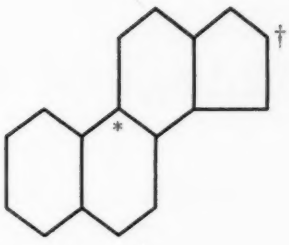
Sec. 2. In the case of any applicant who was engaged in the practice of his specialty by 1939, or prior thereto, and who graduated prior to 1936, and who meets the general requirements stated in Section 1, (a), (b), (c), (d), and (e) above,


On The Next Pages,
The Achievement of Lederle Research Project CL19823
LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, NEW YORK

Lederle announces a major drug with great new promise

Arist

a new corticosteroid created to minimize the
major deterrents to all previous steroid therapy



ocort®

Triamcinolone LEDERLE
9 alpha-fluoro-16 alpha-hydroxyprednisolone
* †

Lederle

- **a new high** in anti-inflammatory effects with lower dosage (averages 1/3 less than prednisone)
- **a new low** in the collateral hormonal effects associated with all previous corticosteroids
  - No sodium or water retention
  - No potassium loss
  - No interference with psychic equilibrium
  - Lower incidence of peptic ulcer and osteoporosis

Biological Effects of Aristocort

with particular emphasis on:

Kidney function

Animal studies on ARISTOCORT[1] have not demonstrated any interference with creatinine or urea clearance. Autopsy surveys of organs of animals on prolonged study of this medication have shown no renal damage.

Sodium and water

ARISTOCORT produced an increase of 230 per cent of water diuresis and 145 per cent sodium excretion when compared to control animals.[1] Metabolic balance studies in man revealed an average negative sodium balance of 0.8 Gm. per day throughout a 12-day period on a dosage of 30 mg. per day.[2] Additional balance studies showed actual sodium loss when ARISTOCORT was given in doses of 12 mg. daily.[3] Other investigators observed significant losses of sodium and water during balance studies and that those patients with edema from some older corticosteroids lost it when transferred to ARISTOCORT.[4,5] In two studies of various rheumatic disorders (194 cases) on prolonged treatment, sodium and water retention was not observed in a single case.[6,7]

Potassium and chlorides

There was no active excretion of potassium or chloride ions in animals given maintenance doses of ARISTOCORT 25 times that found to be clinically effective.[1] Potassium balance studies in humans[2,3] revealed that negative balance did not occur even with doses somewhat higher than those employed for prolonged therapy in rheumatoid arthritis. Hypokalemia, hyperkalemia or hypochloremia did not occur, when tested, in 194 patients with rheumatoid arthritis treated for up to ten and one-half months.[6,7]

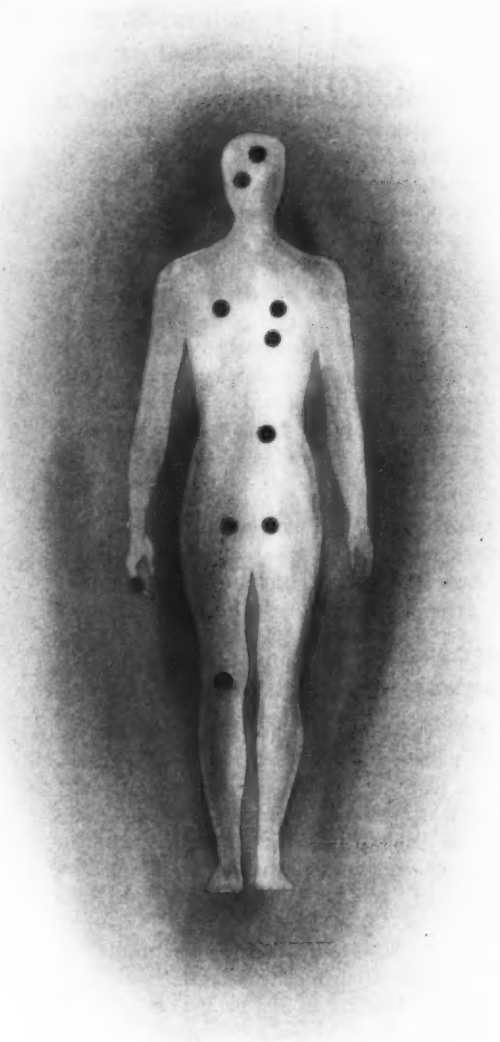
Calcium and phosphorus

Phosphate excretion in animals[1] was not changed from normal even with amounts 25 times greater (by body weight) than those known to be clinically effective. Human metabolic balance studies[3] demonstrated that no change in calcium excretion occurred on dosages usually employed clinically when the compound is administered for its anti-inflammatory effect. Even at a dosage level twice this, slight negative balance appeared only during a short period.

Protein and nitrogen balance

Positive nitrogen balance was maintained during a human metabolic study on maintenance dosage of 12 mg. per day.[3] At dosages two to three times normal levels, positive balance was maintained except for occasional short periods in metabolic studies of several weeks' duration.[2,3]

There was always a tendency for normalization of the A/G ratio and elevation of blood albumin when ARISTOCORT was used in treating the nephrotic syndrome.[8]



Liver glycogen deposition and inflammatory processes

An intimate correlation exists between the ability of a corticosteroid to cause deposition of glycogen in the liver and its capacity to ameliorate inflammatory processes.

In animal liver glycogen studies, relative potencies of ARISTOCORT over cortisone of up to 40 to 1 have been observed. Compared to ARISTOCORT, five to 12 times the amount of prednisone is required to produce varying but equal amounts of glycogen deposition in the liver.[1]

Most patients show normal fasting blood sugars on ARISTOCORT. Diabetic patients on ARISTOCORT may require increased insulin dosage, and occasional latent diabetics may develop the overt disease.

Anti-inflammatory potency of ARISTOCORT was determined by both the asbestos pellet[1] and cottonball[9] tests. It was found to be nine to 10 times more effective than hydrocortisone in this respect.

Gastric acidity and pepsin

The precise mode of ulcerogenesis during treatment with corticosteroids is not known. There is much experimental evidence for believing this may be related to the tendency of these agents to increase gastric pepsin and acidity—and this cannot be abolished by vagotomy, anticholinergic drugs or gastric antral resection.[10] Clinical studies[11] of patients on ARISTOCORT revealed that uropepsin excretion is not elevated. Further, their basal acidity and gastric response to histamine stimulation were within normal limits.

Central nervous system

The tendency of corticosteroids to produce euphoria, nervousness, mental instability, occasional convulsions and psychosis is well known.[12] The mechanism underlying these disturbances is not well understood.

ARISTOCORT, on the contrary, does not produce a false sense of well being, insomnia or tension except in rare instances. In the treatment of 824 patients, for up to one year, not a single case of psychosis has been produced. In general, it appears to maintain psychic equilibrium without producing cerebral stimulation or depression.

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The Promise of Aristocort in Reduction of Side Effects

It is axiomatic to affirm that the undesirable collateral hormone effects of corticosteroids increase in frequency and severity the higher the dosage and the longer used.

It has also become well recognized that the most serious of the major side effects from long-term corticosteroid treatment are peptic ulcers, osteoporosis with fracture, drug psychosis and euphoria, and sodium and water retention leading often to general tissue edema and hypertension.

It is significant that of the close to 400 patients on the lower dosage schedules found effective in bronchial asthma and dermatologic conditions, only 1 case of peptic ulceration has developed. No other of the above side effects have been observed even though ARISTOCORT was administered continuously to them for periods as long as one year.

The treatment of rheumatoid arthritis with steroids appears to result in the highest incidence of side effects. For this reason, the side effects associated with ARISTOCORT therapy in 292 patients with rheumatoid arthritis are below compared to the reported incidence of those from prednisone and prednisolone.

Peptic Ulcer

The most recent study available on the incidence of peptic ulceration in patients with rheumatoid arthritis on long-term prednisone therapy reported 12 ulcers in 49 cases (24 per cent).[1] Lowest incidence of 6.5 per cent has been recorded in a group of patients on this drug for six to nine months.[2] Four of six ulcers, in another series of 39 patients on prednisone,[3] appeared in less than three months of therapy.

The occurrence of peptic ulcer in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is approximately 1 per cent (2 of the 3 occurred in patients transferred from prednisone). In the remaining 532 cases recently analyzed, only one ulcer has been discovered in a patient who apparently had no ulcer when he was changed from another steroid.

Osteoporosis and Compression Fractures

The incidence of compressed fractures of vertebrae—and to a lesser extent in other bones—is high in patients on prolonged therapy with all previous corticosteroids.[4] One group of 49 patients[1] on long-term prednisone treatment experienced nine vertebral fractures (18 per cent); another series of 39 developed eight fractures (20 per cent),[3] four to 15 months after the beginning of steroid administration.

The occurrence of osteoporosis with compression fracture in 292 patients with rheumatoid arthritis treated continuously for up to one year with ARISTOCORT is 0.33 per cent (1 case[5]). Although these results are encouraging, determination of the true incidence of osteoporosis will have to await the passage of more time.

Euphoria and Psychosis

The euphoria so commonly produced by all previous corticosteroids has seemed a most desirable attribute to patients. In penalty, however, they have often later to pay for this by mental disturbances, varying from mild and transitory to severe depression and psychosis,[4] and toxic syndromes producing even convulsions and death.[6]

Since the onset of these complications is not directly related to duration of steroid administration,[7] the fact that not one case of psychosis occurred in 824 patients treated with ARISTOCORT, is most encouraging.

Sodium Retention—Hypertension—Potassium Depletion

When 17 patients were changed from prednisone to ARISTOCORT, 11 rapidly lost weight although only one had had visible edema.[8] Sodium and water retention, hypokalemia or hyperkalemia and steroid hypertension did not appear in 194 rheumatoid arthritis patients treated with ARISTOCORT.[5,9]

The interrelation between blood and body sodium, and steroid hypertension has long been generally appreciated.[10,11] Except in rare instances, or when unusually high doses are used (e.g., leukemia), the problem of edema and hypertension caused by sodium and water retention, has been eliminated with ARISTOCORT.

Minor Side Effects

Collateral hormonal effects of less serious consequence occurred with approximately the same frequency as with the older corticosteroids.[5] These include erythema, easy bruising, acne, hypertrichosis, hot flashes and vertigo. Several investigators have reported symptoms not previously described as occurring with corticosteroid therapy, e.g., headaches, lightheadedness, tiredness, sleepiness and occasional weakness.

Moon facies and buffalo humping have been seen in some patients on ARISTOCORT. However, ARISTOCORT therapy, in many instances, resulted in diminution of "Cushingoid" signs induced by prior therapy. Where this occurs, it may be related to reduced dosage on which patients can be maintained.

Reduction of dosage by one-third to one-half

In a double-blind study of comparative dosage in patients with rheumatoid arthritis,[12] 70 per cent of the cases were as well controlled on a dose of ARISTOCORT one-half that of prednisone. A general recommendation can be made that ARISTOCORT be used in doses two-thirds that of prednisone or prednisolone in the treatment of rheumatoid arthritis. There are individual variations, however, and each patient should be carefully titrated to produce the desired amount of disease suppression.

Comparative studies, of patients changed from prednisone, indicate reduced dosage of ARISTOCORT in bronchial asthma and allergic rhinitis (33 per cent),[8] and in inflammatory and allergic skin diseases (33-50 per cent).[13,14]

General Precautions and Contraindications

Administration of ARISTOCORT has resulted in a lower incidence of the major serious side effects, and in fewer of the troublesome minor side effects known to occur with all previously available corticosteroids. However, since it is a highly potent glucocorticoid, with profound metabolic effects, all traditional contraindications to corticosteroid therapy should be observed.

No precautions are necessary in regard to dietary restriction of sodium or supplementation with potassium.

Since ARISTOCORT has less of the traditional side effects, the appearance of sodium and water retention, potassium depletion, or steroid hypertension cannot be used as signs of overdosage. As a rule patients will lose some weight during the first few days of treatment as a result of urinary output, but then the weight levels off.

Patients do not develop the abnormally voracious appetite common to previous corticosteroid administration. In fact, some patients experienced anorexia, and it is advisable to inform patients of this and to recommend they maintain a normal intake of food, with emphasis on liberal protein intake.

While precipitation of diabetes, peptic ulcer, osteoporosis, and psychosis can be expected to appear rarely from ARISTOCORT, they must be searched for periodically in patients on long-term steroid therapy.

Traditional precautions should be observed in gradually discontinuing therapy, in meeting the increased stress of operation, injury and shock, and in the development of intercurrent infection.

There is one overriding principle to be observed in the treatment of any disease with ARISTOCORT. *The amount of the drug used should be carefully titrated to find the smallest possible dose which will suppress symptoms.*

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The Promise of Aristocort in Rheumatoid Arthritis

ARISTOCORT *therapy has been intensely and extensively studied for periods up to one year on 292 patients with rheumatoid arthritis.*

Significant is the fact that most patients were *severe* arthritics, transferred to ARISTOCORT from other corticosteroids because satisfactory remission had not been attained, or because the seriousness of collateral hormonal effects had made discontinuance desirable.

Results of treatment

Freyberg and associates[1] treated 89 patients with rheumatoid arthritis (A. R. A. Class II or III and Stage II or III). Of these, 51 were on ARISTOCORT therapy from three to over 10 months. In all but a few patients, satisfactory suppression of rheumatoid activity was obtained with 10 mg. per day. Thirteen were controlled on 6 mg. or less a day, and for periods to 180 days. The investigators reported therapeutic effect in most cases to be A. R. A. Grade II (impressive) and that marked reduction in sedimentation rates occurred.

Another interesting observation in this study: Of the 89 patients treated, 12 had active ulcers, developed from prior steroid therapy. *In six patients, the ulcers healed while on doses of* ARISTOCORT *sufficient to control arthritic symptoms.*

Hartung[2] treated 67 cases of rheumatoid arthritis for up to 10 months. He found the optimum maintenance dose to be 11 mg. per day. Nineteen of these patients were treated for six to 10 months with an "excellent" therapeutic response.

Dosage and course of therapy

The initial dosage range recommended is 14 to 20 mg. per day—depending on the severity and acuteness of signs and symptoms. Dosage is divided into four parts and given with meals and at bedtime. Anti-rheumatic effect may be evident as early as eight hours, and full response often obtained within 24 hours. This dosage schedule should be continued for two or three days, or until all acute manifestations of the disease have subsided, whichever is later.

The maintenance level is arrived at by reduction of the total daily dosage in decrements of 2 mg. every three days. The range of maintenance therapy has been found to be from 2 mg. to 15 mg. per day—with only a very occasional patient requiring as much as 20 mg. per day. Patients requiring more than this should not be long continued on steroid therapy.

The aim of corticosteroid therapy in rheumatoid arthritis is to suppress the disease only to the stage which will enable the patient to carry out the required activities of normal living or to obtain reasonable comfort. The maintenance dose of ARISTOCORT to achieve this end is arrived at while making full use of all other established methods of controlling the disease.

ARISTOCORT is available in 2 mg. scored tablets (pink); 4 mg. scored tablets (white). Bottles of 30.

Bibliography

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and has maintained appropriate activity in American Osteopathic Association organizational work, specialty societies, hospital staff work, the pursuit of periodic postgraduate work, contributions to professional literature or otherwise has indicated his consistent interest and competence in his specialty, the requirements of this Article IV, Section 1, paragraphs (f) and (h) may be waived and he may be recommended for certification after passing an appropriate oral and/or clinical examination. The final date for accepting applications under this classification shall be May 1, 1961.

Sec. 3. Subject to the recommendations of the Advisory Board for Osteopathic Specialists and to the approval of the Board of Trustees of the American Osteopathic Association, the American Osteopathic Board of ..... may require such further training in each of the specialty fields coming under its jurisdiction as in its judgment such field may require, provided that the additional requirements for each specialty field are clearly set forth in the Regulations and Requirements of this Board. Additions to requirements shall not go into effect until 1 year subsequent to the announcement of such change.

Sec. 4. If circumstances necessitate it, a section may be written and inserted at this point to provide for the fair handling of applicants already acting on the basis of commitments made by this Board prior to 12-15-46.

ARTICLE V—CERTIFICATES

Sec. 1. Issuance.

Certificates of specialization which have been approved by the Board of Trustees of the American Osteopathic Association shall be issued by the American Osteopathic Board of ..... to applicants who have conformed to all requirements for certification described in Article IV of these Bylaws and who have received the recommendation of the Advisory Board for Osteopathic Specialists and the approval of the Board of Trustees of the American Osteopathic Association. Each such certificate shall be signed by the Chairman and the Secretary-Treasurer of this Board. No certificate is valid until it has been signed by the Executive Secretary of the American Osteopathic Association.

Sec. 2. No certificate shall be issued to an individual who is certified by another board, until the former certificate has been surrendered to the Executive Secretary of the American Osteopathic Association.

Sec. 3. Revocation.

This Board shall have the power to recommend to the Advisory Board for Osteopathic Specialists and the Board of Trustees of the American Osteopathic Association, the revocation of the certificate of any holder whose certificate was obtained by fraud or misrepresentation, who unduly advertises, exploits his certificate, fails to maintain membership in the American Osteopathic Association, violates the Code of Ethics of the American Osteopathic Association or otherwise disqualifies himself.

Sec. 4. To remain in good standing the certificate holder shall pay an annual registration fee to the Executive Secretary of the American Osteopathic Association, as provided in the Rules of Procedure for Specialty Certifying Boards, as compiled by the Advisory Board for Osteopathic Specialists.

ARTICLE VI—MEETINGS

Sec. 1. The American Osteopathic Board of ..... shall hold a regular annual meeting to transact business and to conduct examinations at the time and place of the annual meeting of the American Osteopathic Association (or at the annual meeting of its respective specialty college).

Sec. 2. Special meetings of this Board which are deemed necessary for the transaction of business may be called with the approval of the majority of the members of this Board provided all members are formally notified of the called meeting and its purpose, not less than 30 days before the date set for the meeting.

Sec. 3. For the transaction of business at any meeting of this Board, ... members shall constitute a quorum.

ARTICLE VII—AMENDMENT

Sec. 1. Subject to the review and recommendation of the Advisory Board for Osteopathic Specialists and to the approval of the Board of Trustees of the American Osteopathic Association, these Bylaws may be amended by a two-thirds vote of the total membership of this Board (or three-fifths in a five-member Board) at any meeting provided each member has been notified at least 30 days prior to the date of the meeting of its being called and of the intention to amend.

AMERICAN OSTEOPATHIC BOARD OF ANESTHESIOLOGY

K. George Tomajan, Chairman, Boston, Massachusetts
J. Calvin Geddes, Vice Chairman, Mount Clemens, Michigan
Mahlon L. Ponitz, Detroit, Michigan
Claire E. Pike, Long Beach, California
J. Maurice Howlett, Birmingham, Michigan
Crawford M. Esterline, Kirksville, Missouri
J. Craig Walsh, Secretary-Treasurer, Philadelphia, Pennsylvania
Mrs. E. F. Martin, Corresponding Secretary, Coral Gables, Florida

DEFINITION OF SPECIALTY PRACTICE

For the purpose of the operation of this Board the following division of practice is defined:

a. The practice of anesthesiology shall consist of and include that branch of medical science, art, and practice which deals with the use of anesthetic agents, the evaluation of the patient's condition with reference to the use of anesthetic agents and the care of complications incident to their use.

REQUIREMENTS FOR CERTIFICATION

To be eligible to receive a certificate of specialization from the American Osteopathic Board of Anesthesiology, the applicant must meet all of the following minimum requirements:

1. He shall have graduated from an approved osteopathic college at least 6 years prior to consideration of his application by this Board.

2. He shall be licensed to practice in the state or territory where he conducts his specialty practice.

3. He shall have been a member in good standing of the American Osteopathic Association and of his state or divisional society for a continuous period of at least 3 years immediately prior to making application for examination by this Board.

4. He shall be, and if certified continue to be, favorably known and recognized by his clientele as an osteopathic physician who is specializing in the practice of anesthesiology and shall publicize his osteopathic affiliations in an ethical manner.

5. He shall be able to show evidence of conformity to the standards set in the Code of Ethics of the American Osteopathic Association.

6. He shall have had an internship of at least 1 year in a hospital acceptable to this Board. The intern year of 9 months as prescribed by the Selective Service Board during World War II shall be acceptable. For physicians who graduated in 1942 or prior thereto, this Board may accept other qualifications in lieu of internship where the applicant's anesthetic experience and ability are beyond question.

7. He shall provide notarized documentary evidence of a minimum of 3 years of formal training subsequent to his internship (or its equivalent). This formal training program must be acceptable to this Board and shall include:

a) A period of at least 1 year of formal training in anesthesiology in a hospital acceptable to this Board and made up of either:

i) an approved residency;

or

ii) an approved full-time preceptorship training program.

b) A period of at least 2 years' special training in anesthesiology subsequent to the required 1 year of internship and the required 1 year of formal training. This special training may be made up, either in whole or in part, of:

i) an approved residency;

ii) approved preceptorship training. Approved preceptorship training programs may be either full-time or part-time. Two years of approved part-time precep-

torship training shall be equivalent of 1 year of full-time preceptorship training.

After the completion of the required 1 year of internship (or its equivalent), the required 1 year of formal training, and 1 year of the required 2 years of special training in anesthesiology, this Board may, at its discretion, accept 2 years of recognized specialty practice in anesthesiology as the equivalent of the third year of special training. In each year of specialty practice, the applicant must have administered at least 250 anesthetics of a diversified nature.

During the minimum 3-year period of formal training, there shall be evidence of sufficient clinical work in anesthesiology with a minimum of 250 anesthetics of a diversified nature administered annually.

For applicants who graduated in 1947 or prior thereto, in lieu of requirement No. 7, Item b), this Board may, at its discretion, accept 2 years of recognized specialty practice in anesthesiology, subsequent to the required 1 year of internship (or its equivalent), and the required 1 year of formal training, as the equivalent of 1 year of special training or 4 years of recognized specialty practice in anesthesiology as the equivalent of 2 years of special training. In each year of specialty practice, the applicant must have administered at least 250 anesthetics of a diversified nature.

8. He shall provide evidence to this Board that he has received satisfactory postgraduate training in the basic sciences, including anatomy, physiology, biochemistry, pathology, toxicology, and pharmacology.

The applicant who began a specialty training program in anesthesiology after January 1, 1951, and who has pursued a training program in anesthesiology other than a residency approved by the Board of Trustees of the American Osteopathic Association shall provide evidence to this Board that he has received satisfactory postgraduate training in the basic sciences, including anatomy, physiology, biochemistry, pathology, toxicology, and pharmacology.

A minimum of 100 clock hours shall be required in the basic science training programs, subdivided as follows:

a) A minimum of 10 clock hours each in the following subjects: anatomy, physiology, biochemistry, pathology, toxicology, and pharmacology.

b) The remainder of the minimum required hours may be taken in any of the subjects mentioned or in other basic sciences related to the specialty of anesthesiology.

Those applicants who qualify must submit acceptable documentary evidence, which may be further investigated at the discretion of this Board, of having pursued this advanced training in colleges, laboratories, clinics, hospitals, or other facilities satisfactory to this Board.

9. He shall provide evidence that he has practiced the specialty of anesthesiology for a period of at least 2 years subsequent to the completion of the required minimum of 3 years of formal training, or its equivalent, prior to being examined.

10. He shall provide evidence that he has administered a minimum of 1,250 anesthetics of a diversified nature.

11. He shall demonstrate his fitness to take the examination in any other manner required by this Board.

12. He shall present detailed case records, acceptable to this Board, of 25 major anesthetic procedures, using an outline furnished by this Board, which correlates the principal details of preoperative examination, the reasons for selection and utilization of the anesthetic agents, operative and postoperative conduct of the anesthesia.

13. He shall submit complete anesthetic case records and a report of pertinent factors where fatalities resulted within 24 hours in all patients anesthetized by the applicant during the 12-month period immediately prior to making application for examination by this Board.

14. He shall submit a list of the anesthetics administered by him for the 12-month period immediately prior to making application, naming the type of operation, the hospital in which the operation was performed, the patient's initials, the hospital case number, the name of the surgeon, the anesthetics administered, and the case termination. This list shall be certified by the administrator of the hospital in which the anesthetics were administered.

15. He shall submit a segregated total of all anesthetics administered in the 3-year period prior to making application, thereby showing the variety of agents and methods of anesthesia.

16. In the case of any applicant who was engaged in the practice of anesthesiology by 1939, or prior thereto, and who graduated prior to 1936, and who meets the general requirements stated in Article IV, Section 1, a), b), c), d), and e) of the Bylaws, and who has maintained appropriate activity in American Osteopathic Association organizational work, specialty societies, hospital staff work, the pursuit of periodic postgraduate work, contributions to professional literature or otherwise has indicated his consistent interest and competence in the field of anesthesiology, the requirements of Article IV, Section 1, f) and h) of the Bylaws may be waived and the applicant may be recommended for certification after passing an appropriate oral and/or clinical examination. The final date for accepting applications under this classification shall be May 1, 1961.

AMERICAN OSTEOPATHIC BOARD OF DERMATOLOGY

A. P. Ulbrich, Chairman, Detroit, Michigan
Anthony E. Scardino, Vice Chairman, Kansas City, Missouri
Donald L. Gardner, Secretary-Treasurer, Los Angeles, California

DEFINITION OF SPECIALTY PRACTICE

For the purpose of the operation of this Board the following divisions of practice are defined:

a. The practice of dermatology shall consist of and include the diagnosis and the surgical and nonsurgical management of the diseases of the skin and its appendages.

b. The practice of syphilology shall consist of and include the diagnosis and the surgical and nonsurgical management of syphilis in all its phases and stages.

c. A specialty practice, as defined by this Board, shall consist of not less than 90 per cent dermatology and syphilology.

REQUIREMENTS FOR CERTIFICATION

Section 1. To be eligible to receive a certificate of specialization from the American Osteopathic Board of Dermatology, the applicant must meet all of the following minimum requirements, excepting as provided in Section 2 of this Article:

(a) He must be a graduate of an approved osteopathic college.

(b) He must be licensed to practice in the state or territory where he conducts his specialty practice.

(c) He must have been a member in good standing of the American Osteopathic Association and of his state or divisional society for a continuous period of at least 3 years immediately prior to application for examination by this Board.

(d) He must have satisfactorily completed an internship of at least 1 year in a hospital approved for intern training by the American Osteopathic Association or satisfactory to this Board. If graduated in 1942 or prior thereto, the applicant must have had training of value equivalent to that of an acceptable internship as determined by this Board.

(e) He must be able to show evidence of conformity to the standards set in the Code of Ethics of the American Osteopathic Association.

(f) A period of not less than 3 years of special training related to the specialty shall be required, after the required 1 year of internship, or its equivalent, but not necessarily running 3 consecutive years. This Board may modify the requirement of 3 years' special training by allowing a credit of 1 year of special training for each 5 years of specialty practice for a total credit of not to exceed 2 years of the requirement, for physicians who graduated prior to 1946, but in no case may such applicant be accepted for examination without at least 1 year of special training as defined. This training shall include:

(i) Advanced study in the sciences: Anatomy, physiology, biochemistry, pathology, pharmacology, and such other basic sciences as are necessary to a mature and comprehensive understanding of the prevention, diagnosis, therapy, and management of the disorders involved in the specialty.

(ii) Active experience in the diagnosis and treatment in such amount and diversity that it will assure adequate training in the specialty.

The special training may be provided in colleges, laboratories, clinics, hospitals, or other facilities satisfactory to this Board, or by serving an acceptable assistantship to, or studying under the preceptorship of, a qualified specialist in this field, supplemented by prescribed study conforming to a plan approved by this Board.

The minimum 3-year period of special training may be made up of varying combinations of the several types mentioned above, as determined by this Board. It shall be this Board's duty to assist applicants in determining a suitable program of special training, but it is not this Board's function to supply the training. This Board will recognize as proper institutions for securing this training those institutions which are approved for specal training by the approving agencies of the American Osteopathic Association, together with such others as this Board may determine to possess facilities and personnel adequate to provide proper training.

(g) He must practice as a specialist in this field for a period of at least 2 years subsequent to the minimum 3 years of special training. Specialty practice within each specialty field under this Board shall be defined in the Regulations and Requirements of this Board.

(h) Following satisfactory compliance with the prescribed requirements as to special training and specialty practice, the applicant shall be required to pass appropriate examinations planned to evaluate his understanding of the scientific bases of the problems involved in the specialty, his familiarity with the current advances in the specialty, the possession of sound judgment and of a high degree of skill in the diagnostic and therapeutic procedures involved in the practice of the specialty. Oral, written, and clinical examinations shall be conducted and required in the case of each applicant. This Board may conduct the oral and written examinations at the end of the required 3 years of special training, but shall not conduct the practical or clinical examination until the required 2 years of specialty practice have been completed. The members of this Board shall personally review, if not perform, the grading of each written examination. The conduct of the clinical examinations may be delegated to committees of not fewer than two individuals maturely qualified in the specialty. A full description of the method of conducting the examination shall be formulated in this Board's Regulations and Requirements, and provision for re-examination shall be made.

(i) Applicants desiring examination for certification shall be required to file an application which shall set forth the applicant's qualifications for examination as stated in paragraphs (a), (b), (c), (d), (e), (f), and (g) above. The procedure for filing applications shall be set forth in the Regulations and Requirements and no application for action at any annual meeting of the Board shall be accepted after April 1st of that year.

Section 2. In the case of any applicant who was engaged in the practice of his specialty by 1939 or prior thereto, and who graduated prior to 1936 and who meets the general requirements stated in Section 1, (a), (b), (c), (d), and (e) above and has maintained appropriate activity in American Osteopathic Association organizational work, specialty societies, hospital staff work, the pursuit of periodic postgraduate work, contributions to professional literature or otherwise has indicated his consistent interest and competence in his specialty, the requirements of this Article IV, Section 1, paragraphs (f) and (h) may be waived, and he may be recommended for certification after passing an appropriate oral and/or clinical examination. The final date for accepting applications under this classification shall be May 1, 1961.

Section 3. Subject to the recommendations of the Advisory Board for Osteopathic Specialists and to the approval of the Board of Trustees of the American Osteopathic Association, the American Osteopathic Board of Dermatology may require such further training in each of the specialty fields coming under its jurisdiction as in its judgment such field may require, provided that the additional requirements for each specialty field are clearly set forth in the Regulations and Requirements of this Board. Additions to requirements shall not go into effect until 1 year subsequent to the announcement of such change.

AMERICAN OSTEOPATHIC BOARD OF INTERNAL MEDICINE

Basil Harris, Chairman, Los Angeles, California
Stuart F. Harkness, Vice-Chairman, Des Moines, Iowa
Neil R. Kitchen, Detroit, Michigan
John L. Crowther, Bangor, Maine
Maxwell R. Brothers, Los Angeles, California
G. A. Whetstine, Wilton Junction, Iowa
Earl F. Riceman, Philadelphia, Pennsylvania
Charles M. Worrell, Harrisburg, Pennsylvania
Glennard E. Lahrson, Secretary-Treasurer, Oakland, California

DEFINITION OF SPECIALTY PRACTICE

The practice of internal medicine is devoted primarily to the application of subjective, objective, and laboratory procedures in studying and evaluating the affections, diseases, and functional disorders of the circulatory, respiratory, digestive, endocrine, metabolic, musculoskeletal, hematopoietic, and eliminative systems of the human body to:

a. the correlation of data thus secured with clinical observations to reach diagnostic conclusions;
b. the management of cases within this field by the utilization of all nonsurgical measures;
c. assist in planning the therapeutic utilization of the technics of other specialty branches of medical and surgical practice in the care of patients.

The practice of internal medicine does not include the treatment of the organs of special sense or the organs of the reproductive system, except as to their endocrine relations, and excludes the use of instrumental procedures ordinarily performed by surgeons or surgical specialists.

REQUIREMENTS FOR CERTIFICATION

A. *Educational Qualifications.*—To be eligible to receive a certificate of specialization from the American Osteopathic Board of Internal Medicine the applicant must meet all of the minimum requirements as set forth in the Bylaws of the American Osteopathic Board of Internal Medicine, Article IV, Sections 1, 2, and 3.

The 3-year period of training related to the specialty as required in the Bylaws, Article IV, Section 1, (f) is further defined:

1. A period of not less than 3 years of special training related to this specialty shall be required, after the required 1 year of internship or its equivalent, but not necessarily running 3 consecutive years. This Board may modify the requirement of 3 years' special training by allowing a credit of 1 year of special training for each 5 years of specialty practice for a total credit of not to exceed 2 years of the requirement for physicians who graduated prior to 1946, but in no case may such applicant be accepted for examination without at least 1 year of special training as defined.

A year of special training shall be interpreted to mean 12 months; a training hour is interpreted to mean a platform hour. This training shall include:

1. Advanced study in the sciences: Anatomy, physiology, biochemistry, pathology, pharmacology, and such other basic sciences as are necessary to a mature and comprehensive understanding of the prevention, diagnosis, therapy, and management of the disorders involved in the specialty.

2. Active experience in the diagnosis and treatment in such amount and diversity that it will assure adequate training in the specialty.

3. To obtain a mature and comprehensive understanding of the Basic Sciences this Board recommends a minimum of 160 hours of basic science instruction on the graduate level, divided as follows:

Anatomy	30 hours
Physiology	37 hours
Pathology	37 hours
Biochemistry	15 hours
Bacteriology	20 hours
Pharmacology	21 hours

4. Didactic and clinical instruction to assure adequate training in this specialty is recommended in the various fields of internal medicine totaling 320 hours. This instruction must include cardiology, electrocardiography, peripheral vascular dis-

eases, medical diseases of the kidney, gastroenterology, metabolic diseases, endocrinology, hematology, clinical pathology, respiratory diseases, diseases of the biliary system, musculoskeletal system, x-ray interpretation, ophthalmoscopy, and osteopathic principles and therapeutics, including materia medica as these relate to internal medicine.

5. The special training may be provided in colleges, laboratories, clinics, hospitals, or other facilities satisfactory to this Board, which may include:

a. *Preceptorship.*—All preceptorship training programs must be approved by the Committee on Accreditation of Postgraduate Training and the Board of Trustees of the American Osteopathic Association on recommendation of this Board. The preceptorship training program shall be full time for a period of 3 years, but not necessarily running 3 consecutive years. The preceptorship training program shall be previously submitted to and approved by the Committee on Accreditation of Postgraduate Training of the American Osteopathic Association and the Board of Trustees of the American Osteopathic Association on recommendation of this Board. The preceptor and trainee must likewise be qualified and approved by the above agencies. The trainee shall not maintain an independent practice.

b. *Full-time Assistantship.*—The assistantship must extend for a minimum period of 3 years to a certified internist acceptable to this Board. A full explanation of the scope and diversity of practice, together with any other information that may be from time to time requested, shall be presented to this Board for approval.

c. *Residency.*—Full-time residency in internal medicine shall be in a hospital approved for resident training by the Bureau of Hospitals of the American Osteopathic Association. Appropriate credit toward the special training requirement of this Board shall be allowed for full-time approved residencies of 1, 2, or 3 years in internal medicine.

6. It shall be this Board's duty to assist applicants in determining a suitable program of special training, but it is not this Board's function to supply the training. This Board will recognize as proper institutions for securing this training those institutions which are approved for special training by the approving agencies of the American Osteopathic Association, together with such others as this Board may determine to possess facilities and personnel adequate to provide proper training. An affidavit shall be furnished upon the request of this Board.

B. *Membership Requirements.*—Membership qualifications are those as stated in the Bylaws of the American Osteopathic Board of Internal Medicine, Article IV, Section 1, (c).

C. *Graduation Requirements.*—The graduation requirements with exceptions are those as stated in the Bylaws of the American Osteopathic Board of Internal Medicine, Article IV, Section 2.

D. *Years of Specialty Practice Required.*—The applicant must have practiced as a specialist in the field of internal medicine for a period of at least 2 years subsequent to the minimum of 3 years of special training, as defined by this Board, before he is eligible for clinical examination.

E. *Percentage of Practice in Internal Medicine.*—The applicant is expected to have practiced according to the "Definition of the Practice of Internal Medicine" as printed in the Regulations and Requirements of the American Osteopathic Board of Internal Medicine, Part II, 1. An affidavit shall be furnished on request of the Board.

F. *Case Records.*—Specially prepared case records for presentation to this Board are not required, however, during the investigation by the Credentials Committee the applicant's office and/or hospital records shall be made available on request of the Committee. Such original records are not to be removed from the office or hospital.

G. *Copy of Published Articles.*—Authenticated copies of published articles are to be furnished on request of the Credentials Committee. No thesis is required.

H. *Privilege of Re-Examination.*—No applicant will be re-examined within a period of 1 year following an initial failure. Re-application will be necessary to retake the examination. If the applicant fails the second examination, a 2-year period of further special study and practice satisfactory to the American Osteopathic Board of Internal Medicine is required. A re-application will be necessary to retake the examination after the second failure.

AMERICAN OSTEOPATHIC BOARD OF NEUROLOGY AND PSYCHIATRY

K. Grosvenor Bailey, Chairman, Los Angeles, California
Cecil Harris, Vice Chairman, Philadelphia, Pennsylvania
Randall J. Chapman, Burbank, California
Thomas J. Meyers, Pasadena, California
Floyd E. Dunn, Secretary-Treasurer, Kansas City, Missouri

DEFINITION OF SPECIALTY PRACTICE

For the purpose of the operation of this Board, the following divisions of practice are defined:

a. The specialty of neurology shall consist of that division of the practice of osteopathic medicine embracing disorders of the organic nervous system. It shall include all diagnostic procedures and examination technics giving an understanding of the problems involved. Included will be conditions affecting the peripheral nerves, as well as the brain and central nervous system, the autonomic nervous system, and endocrine syndromes, and specific conditions such as epilepsy, migraine, tics, etc., are included. It does not include neurosurgery.

b. The specialty of psychiatry includes that division of the practice of osteopathic medicine involving functional and organic disturbances of the mind, emotions, and nervous system. It includes personality problems, addictions, behavior difficulties, insanities, marital problems, and sexual and social anomalies. It covers counseling and psychotherapy in all its aspects, as well as diagnostic methods leading to an understanding of the dynamics of the mind. It includes legal and child psychiatry and the field of psychosomatics. It includes electroshock, hydrotherapy, electronarcosis, and other physical modalities applied to the treatment of the mentally ill. It does not include neurosurgery.

c. The specialty of neurology and psychiatry includes all of the divisions of osteopathic medicine as combined with the definitions of the specialty of neurology and the specialty of psychiatry, as stated in a. and b. above.

Note: For the definition of neurosurgery and for the requirements, see American Osteopathic Board of Surgery.

REQUIREMENTS FOR CERTIFICATION

Sec. 1. To be eligible to receive a certificate of specialization from the American Osteopathic Board of Neurology and Psychiatry the applicant must meet all of the following minimum requirements, excepting as provided in Article IV, Section 3 and Section 4 of the Bylaws:

(a) He must have graduated from an approved osteopathic college.

(b) He must be licensed to practice in the state or territory where he conducts his specialty practice.

(c) He must have been a member in good standing of the American Osteopathic Association and of his state or divisional society for a continuous period of at least 3 years immediately prior to application for examination by this Board.

(d) He must have satisfactorily completed an internship of at least 1 year in a hospital approved for intern training by the American Osteopathic Association or satisfactory to this Board. If graduated in 1942 or prior thereto, the applicant must have had training of value equivalent to that of an acceptable internship as determined by this Board.

(e) He must be able to show evidence of conformity to the standards set in the Code of Ethics of the American Osteopathic Association.

(f) A period of not less than 3 years of special training related to the specialty shall be required, after the required 1 year of internship, or its equivalent, but not necessarily running 3 consecutive years. This Board may modify the requirement of 3 years' special training by allowing a credit of 1 year of special training for each 5 years of specialty practice for a total credit of not to exceed 2 years of the requirement, for physicians who graduated prior to 1946, but in no case may such applicant be accepted for examination without at least 1 year of special training as defined. For certification in neurol-

ogy and psychiatry, the training period shall be not less than 5 years. This training shall include:

(i) Advanced study in the sciences: Anatomy, physiology, biochemistry, pathology, pharmacology, and such other basic sciences as are necessary to a mature and comprehensive understanding of the prevention, diganosis, therapy, and management of the disorders involved in the specialty.

(ii) Active experience in the diagnosis and treatment in such amount and diversity that it will assure adequate training in the specialty.

The 3-year period of special training as required in Section 1, (f), above, is further defined:

1. For certification in Neurology the following shall be included in an acceptable training program, residency, or preceptorship:

The amount of time of training shall total 3 calendar years or 6,000 clock hours and shall include:

Basic Science	100 clock hours
Psychiatry and Psychology	500 clock hours
Neurological Surgery Observation	500 clock hours
Didactic Courses	500 clock hours

A maximum of 1,000 hours may be granted for case reports, 2 hours being allowed for each. A maximum of 500 such reports may be presented. Such reports may be considered if they are submitted in an approved form and signed by the preceptor. Each report must include sufficient information to adequately describe the problem, support of diagnosis, data for differential diagnostic study, an estimate of the prognosis, and a suggested plan of treatment. Clinical training shall include: Electroencephalography, electromyography, reactions of degeneration, neuro-ophthalmoscopy, spinal taps, cisternal puncture, encephalography, ventriculography, stellate ganglion blocks, angiography, myelography, and autopsy studies. The amount of clinical training shall be 3,400 clock hours. Furthermore, the clinical material utilized must include a sampling of: Degenerative diseases, traumatic conditions, convulsive disorders, infective and toxic problems, neoplasms of the nervous system, deficiency states, cerebro-vascular problems, and geriatric and pediatric neurology.

2. For certification in Psychiatry the following shall be included in an acceptable training program, residency, or preceptorship:

The amount of time of training shall total 3 calendar years or 6,000 clock hours and shall include:

Psychological Subjects, including Testing	500 clock hours
Neurology and Neurological Subjects	500 clock hours
Basic Science	100 clock hours

A maximum of 1,000 hours may be granted for case reports, 2 hours being allowed for each. A maximum of 500 such reports may be presented. Such reports may be considered if they are submitted in an approved form and signed by the preceptor. Psychoanalysis to which the applicant has submitted himself for treatment or for training will be credited for a maximum amount of 200 clock hours. The training program for certification in Psychiatry shall be primarily of a clinical nature and must be conducted as actual contact with patients under supervision. The full range of psychiatric conditions shall include: Functional psychotics, neuroses of all kinds, sexual aberrations, organic mental conditions, geriatric psychiatry, pediatric psychiatry, marital problems, neurologic psychiatry, psychosomatics, mental deficiency, epilepsy, narcolepsy, alcoholism, psychopathic personalities, syphilis of the nervous system, and legal psychiatry. In addition, the applicant shall acquire familiarity with the theory of Psychiatry and the technics of: Electro-shock treatment, physiotherapy in psychiatry, hydrotherapy in psychiatry, pharmacology in psychiatry, dietetics in psychiatry, occupational therapy, psychotherapy (at least an operational ability), hypnosis and suggestion, child guidance, marital counseling, elementary psychological testing, and psychiatric examination procedure. Only work done in clinically oriented disciplines will be credited. The policy of this Board is to scrutinize critically all preceptor training programs in psychiatry because of its limitations and its questionable value. Unapproved preceptor training programs will not be recognized by this Board. The minimum amount of clinical training shall be 3,400 clock hours.

3. For certification in Neurology and Psychiatry an acceptable training program shall consist of a minimum of 5 years' full-time training or a total of 10,000 clock hours. This training shall consist of 2 years devoted exclusively to the study of Neurology and 2 years devoted exclusively to the study of Psychiatry and 1 year of study which shall include material from both fields and the Basic Sciences.

A holder of a certificate in Neurology or a holder of a certificate in Psychiatry shall be required to complete a minimum of 2 years' additional training to qualify for a certificate in Neurology and Psychiatry. The required 2 years' additional training program must be approved by the American Osteopathic Board of Neurology and Psychiatry.

The special training may be provided in colleges, laboratories, clinics, hospitals, or other facilities satisfactory to this Board, or by serving an acceptable assistantship to or studying under the preceptorship of a qualified specialist in this field, supplemented by prescribed study conforming to a plan approved by this Board.

The minimum 3-year period of special training may be made up of varying combinations of the several types mentioned above, as determined by this Board. It shall be this Board's duty to assist applicants in determining a suitable program of special training, but it is not this Board's function to supply the training. This Board will recognize as proper institutions for securing this training those institutions which are approved for special training by the approving agencies of the American Osteopathic Association, together with such others as this Board may determine to possess facilities and personnel adequate to provide proper training.

(g) He must practice as a specialist in his field for a period of at least 2 years subsequent to the minimum 3 years of special training. At least 80 per cent of the applicant's practice must be in the specialty field.

(h) Following satisfactory compliance with the prescribed requirements as to special training and specialty practice, the applicant shall be required to pass appropriate examinations planned to evaluate his understanding of the scientific bases of the problems involved in the specialty, his familiarity with the current advances in the specialty and the possession of sound judgment and of a high degree of skill in the diagnostic and therapeutic procedures involved in the practice of the specialty. Oral, written, and clinical examinations shall be conducted and required in the case of each applicant. This Board may conduct the oral and written examinations at the end of the required 3 years of special training, but shall not conduct the practical or clinical examination until the required 2 years of specialty practice have been completed. The members of this Board shall personally review, if not perform, the grading of each written examination. The conduct of the clinical examinations may be delegated to committees of not fewer than two individuals maturely qualified in the specialty. A full description of the method of conducting the examination shall be formulated in this Board's Regulations and Requirements, and provision for re-examination shall be made.

Sec. 2. In the case of any applicant who was engaged in the practice of his specialty by 1939, or prior thereto, and who graduated prior to 1936, and who meets the general requirements stated in Section 1, (a), (b), (c), (d), and (e) above and has maintained appropriate activity in American Osteopathic Association organizational work, specialty societies, hospital staff work, the pursuit of periodic postgraduate work, contributions to professional literature, or otherwise has indicated his consistent interest and competence in his specialty, the requirements of Article IV, Section 1, paragraphs (f) and (h) may be waived, and he may be recommended for certification after passing an appropriate oral and/or clinical examination. The final date for accepting applications under this classification shall be May 1, 1961.

Sec. 3. Subject to the recommendations of the Advisory Board for Osteopathic Specialists and to the approval of the Board of Trustees of the American Osteopathic Association, the American Osteopathic Board of Neurology and Psychiatry may require such further training in each of the specialty fields coming under its jurisdiction as in its judgment such field may require, provided that the additional requirements for each specialty field are clearly set forth in the Regulations and Requirements of this Board. Additions to requirements shall not go into effect until 1 year subsequent to the announcement of such change.

AMERICAN OSTEOPATHIC BOARD OF OBSTETRICS AND GYNECOLOGY

Frank E. Gruber, Chairman, Philadelphia, Pennsylvania
Kenneth A. Scott, Vice Chairman, Providence, Rhode Island
Homer R. Sprague, Lakewood, Ohio
Arthur B. Funnell, Denver, Colorado
Dorothy J. Marsh, Glendale, California
Charles J. Mount III, Burbank, California
A. J. Still, Flint, Michigan
Maurice C. Kropf, Orrville, Ohio
Jacquelin Bryson, Secretary-Treasurer, Denver, Colorado

DEFINITION OF SPECIALTY PRACTICE

a. Obstetrics: The practice of obstetrics shall be defined as the diagnosis and management of all states presented in cases of pregnancy from the time of conception through the postpartum period by use of any or all means excepting those involving laparotomy or vaginal cesarean section.

b. Gynecology: The practice of gynecology shall be defined as the diagnosis and treatment of diseases peculiar to the female, and because of the close relationship does not exclude affections of the mammary gland and urinary tract in the female, but does exclude all major surgical procedures.

(1) The surgical procedures included under Gynecology are:

(a) Cervical cautery, conization, and biopsy
(b) Endometrial biopsy
(c) Diagnostic dilatation and curettage
(d) Hysterosalpingographies and tubal insufflations
(e) Incision of superficial abscesses
(f) Biopsy and excision of superficial tumors of the vulva
(g) Female circumcision
(h) Breast biopsies

c. Obstetrical-Gynecological Surgery: The practice of obstetrical-gynecological surgery shall consist of and include that branch of medical science, art, and practice which is concerned with major operative procedures:

(1) Within the abdomen and pelvis upon the female generative system or structures related thereto;
(2) Major plastic procedures upon the vaginal tract by manual and instrumental means;
(3) And mammary gland.

REQUIREMENTS FOR CERTIFICATION

To be eligible to receive a certificate of specialization from the American Osteopathic Board of Obstetrics and Gynecology the applicant must meet all of the following minimum requirements:

a. He must be a graduate of an approved osteopathic college.

b. He must be licensed to practice in the state or territory where he conducts his specialty practice.

c. He must have been a member in good standing of the American Osteopathic Association and of his state or divisional society for a continuous period of at least 3 years prior to application for examination by this Board.

d. He must have satisfactorily completed an internship of at least 1 year in a hospital approved for intern training by the American Osteopathic Association or satisfactory to this Board. If graduated in 1942 or prior thereto, the applicant must have had training of value equivalent to that of an acceptable internship as determined by this Board.

e. He must be able to show evidence of conformity to the standards set in the Code of Ethics of the American Osteopathic Association.

f. A period of not less than 3 years of special training related to the specialty shall be required, after the required 1 year of internship, or its equivalent, but not necessarily immediately following the internship nor running 3 consecutive years, except that in the case of applicants who graduated prior to 1946, this Board may modify the requirement of 3 years of special training by allowing a credit of 1 year of special training for each 5 years of specialty practice for a total credit of not to exceed 2 years of the requirement, but in no case may such an applicant graduated prior to 1946 be accepted for examination without at least 1 year of special training as defined. This training shall include:

(i) Advanced study in the sciences: Anatomy, physiology, biochemistry, pathology, pharmacology, and such other basic sciences as are necessary to a mature and comprehensive understanding of the prevention, diagnosis, therapy, and management of the disorders involved in the specialty.

A minimum of 100 clock hours shall be required in the basic science training programs, subdivided as follows:

(a) A minimum of 10 clock hours each in the following subjects: Anatomy, physiology, biochemistry, pathology, and pharmacology.

(b) The remainder of the minimum required hours may be taken in any of the subjects mentioned or in other basic sciences related to the specialty.

(ii) Active experience in diagnosis and treatment in such amount and diversity that it will assure adequate training in the specialty.

The special training may be provided in colleges, laboratories, clinics, hospitals, or other facilities satisfactory to this Board, or by serving an acceptable assistantship to or studying under the preceptorship of a qualified specialist in this field, supplemented by prescribed study conforming to a plan approved by this Board.

The minimum 3-year period of special training may be made up of varying combinations of the several types mentioned above, as determined by this Board.

It shall be this Board's duty to assist applicants in determining a suitable program of special training, but it is not this Board's function to supply the training.

This Board will recognize as proper institutions for securing this training those institutions which are approved for special training in Obstetrics and Gynecology and Obstetrical-Gynecological Surgery by the approving agencies of the American Osteopathic Association, together with such others as this Board may determine to possess facilities and personnel adequate to provide proper training.

This Board will also recognize as proper institutions for securing this training those institutions which are approved for special training in general or gynecological surgery by the approving agencies of the American Osteopathic Association, provided that the total 3-year training period includes the required training in Obstetrics and Gynecology and Obstetrical-Gynecological Surgery, together with such others as this Board may determine to possess facilities and personnel adequate to provide proper training.

g. He must practice as a specialist in his field for a period of at least 2 years subsequent to the minimum 3 years of special training as defined by this Board prior to being examined.

h. Thesis:

1. The applicant shall submit a thesis which shall be a report of an original investigation in the specialty field by the applicant or a review of the literature to which the applicant shall add personal experiences referable to the subject matter. This Board may accept a previously published article on a subject in the specialty fields covered by this Board. Grading of the article will be based on English composition and neatness as well as upon the subject matter.

2. Unacceptable Case Records and Thesis

This Board reserves the right to refuse for credit any case record or records or any thesis if, in its judgment, they do not conform to the standards previously mentioned.

i. Following satisfactory compliance with the prescribed requirements as to special training and specialty practice, the applicant shall be required to pass appropriate examinations planned to evaluate his understanding of the scientific bases of the problems involved in the specialty, his familiarity with the current advances in the specialty, and the possession of sound judgment and of a high degree of skill in the diagnostic and therapeutic procedures involved in the practice of his specialty. Oral, written, and clinical examinations shall be conducted and required in the case of each applicant. The members of this Board shall personally review, if not perform, the grading of each written examination. The conduct of the clinical examinations may be delegated to committees of not fewer than two individuals maturely qualified in the specialty.

j. Modification of requirements:

In the case of any applicant who was engaged in the practice of his specialty by 1939, or prior thereto, and who graduated prior to 1936, and who meets the general requirements stated in Article IV, Section 1, (a), (b), (c), (d), and (e) of the Bylaws of this Board, and has maintained appropriate activity in American Osteopathic Association organizational work, specialty societies, hospital staff work, the pursuit of periodic postgraduate work, contributions to professional literature, or otherwise has indicated his consistent interest and competence in his specialty field, the requirements of Article IV, Section 1, paragraphs (f) and (h) of the Bylaws of this Board may be waived and he may be recommended for certification after passing an appropriate oral and/or clinical examination. The final date for accepting applications under this classification shall be May 1, 1961.

REQUIREMENTS FOR CERTIFICATION IN OBSTETRICS AND GYNECOLOGY

1. Percentage of practice in the field covered by this specialty shall be not less than 60 per cent. The applicant must supply a notarized affidavit of the foregoing.

2. The applicant shall furnish an affidavit of having been first assistant to a qualified specialist in the management of not less than 50 pathological pelvic deliveries as encountered during his assistantship, and 200 cases of a gynecological nature.

3. The applicant must show notarized documented evidence of handling, on his own responsibility, not less than 25 pathological pelvic deliveries and such other nonpathological deliveries as were encountered in the practice of the specialty.

4. The applicant must show notarized documented evidence of handling, as a responsible physician, 100 gynecological cases in which he shall have (a) made a complete examination, including laboratory studies; (b) determined a diagnosis; (c) recommended a gynecological or obstetrical-gynecological surgical treatment; (d) observed or participated in a surgical correction of a pathology found, or performed the gynecological or obstetrical-gynecological surgical treatment; and (e) followed the patient through her convalescence to recovery. A reasonable proportion of obstetrical-gynecological surgical and gynecological cases shall be included.

5. The applicant shall send to the Secretary-Treasurer of this Board authentic copies of 15 pathological obstetrical case records, and 10 complicated gynecological case records. The applicant must file an affidavit certifying that the records are exact copies of authentic records in his files, and that he personally cared for the cases presented. All records must be presented in printed form. The obstetrical case records must include a history, physical examination, routine and special laboratory examinations, antepartum, labor, delivery, and postpartum progress records of sufficient quality to clearly reflect the detailed management of the case to the time of dismissal. The gynecological case records shall include history, physical examination, routine and special laboratory examinations, diagnosis, detailed treatment notes, progress notes, and case summary.

REQUIREMENTS FOR CERTIFICATION IN OBSTETRICAL-GYNECOLOGICAL SURGERY

1. Percentage of practice by the applicant in the Obstetrical-Gynecological Surgical phases shall not be less than 75 per cent. The applicant must supply a notarized affidavit of the foregoing.

2. The applicant shall furnish an affidavit of having been first assistant to a qualified specialist in the management of not less than 50 pathological pelvic deliveries and such other nonpathological deliveries as were encountered during his assistantship.

3. The applicant must show notarized documental evidence of handling on his own responsibility not less than 25 pathological pelvic deliveries and such other nonpathological deliveries as were encountered in the practice of the specialty.

4. He shall have assisted in the performance of not less than 400 major surgical operations, 200 of which must be of a major obstetrical-gynecological nature. Not more than 25 per cent of any one surgical procedure shall be permitted for accreditation towards the required number of operative assistantships.

5. He shall have performed a minimum of 200 major surgical operations in which he was the responsible surgeon, 100 of which must be of a major obstetrical-gynecological nature. Not more than 25 per cent of any one surgical procedure shall be permitted for accreditation towards the required number of operative procedures performed on his own responsibility.

6. The applicant shall send to the Secretary-Treasurer of this Board authentic copies of 25 case records of major obstetrical-gynecological surgical procedures. The applicant must file an affidavit certifying that the records are exact copies of authentic records in his files and that he personally cared for the cases presented. All records must be presented in printed form. The case records must include a history, physical examination, all preoperative diagnostic procedures, operating technique, surgical findings, progress notes, pathological reports, and case summary up to the date of discharge from his care.

7. These records become the property of this Board and shall be placed on file with the Secretary-Treasurer of this Board for a minimum of 3 years.

8. He shall demonstrate his fitness to take the examination in any other manner required by this Board.

AMERICAN OSTEOPATHIC BOARD OF OPHTHALMOLOGY AND OTORHINOLARYNGOLOGY

Clarence M. Mayberry, Chairman, East Liverpool, Ohio
C. L. Attebery, Vice Chairman, Kirksville, Missouri
J. Ernest Leuzinger, Philadelphia, Pennsylvania
Ward G. DeWitt, Long Beach, California
Richard J. Murphy, Detroit, Michigan
Ralph S. Licklider, Secretary-Treasurer
Clifford C. Foster, Executive Secretary, Lakewood, Ohio

DEFINITION OF SPECIALTY PRACTICE

Sec. 1. For the purpose of the operation of this Board, the following divisions of practice are defined:

(a) The practice of ophthalmology shall consist of the diagnosis and treatment of the disorders and diseases of the eye and its adnexa, including refraction.

(b) The practice of otorhinolaryngology shall include the diagnosis and treatment of disorders and diseases of the ear, nose, and throat. It may include such other specialties as have a definite relationship to otorhinolaryngology.

(c) The practice of orofacial plastic surgery shall include the diagnosis, medical and surgical treatment and repair of developmental, congenital and acquired deformities of the mouth and face, to include the entire area of the head and neck.

REQUIREMENTS FOR CERTIFICATION

Sec. 1. To be eligible to receive a certificate of specialization from the American Osteopathic Board of Ophthalmology and Otorhinolaryngology the applicant must meet all of the following minimum requirements, excepting as provided in Section 3 and Section 4 of this Article:

(a) He must be a graduate of an approved osteopathic college.

(b) He must be licensed to practice in the state or territory where he conducts his specialty practice.

(c) He must have been a member in good standing of the American Osteopathic Association and of his state or divisional society for a continuous period of at least 3 years immediately prior to application for examination by this Board, and, if successful in passing his examination, he shall remain a member in good standing in the American Osteopathic Association and in his state or divisional society.

(d) He must have satisfactorily completed an internship of at least 1 year in a hospital approved for intern training by the American Osteopathic Association, or satisfactory to the American Osteopathic Board of Ophthalmology and Otorhinolaryngology. If the applicant was graduated in 1942, or prior thereto, he must furnish evidence of training of equal value satisfactory to the American Osteopathic Board of Ophthalmology and Otorhinolaryngology.

(e) He shall be, and if certified continue to be, favorably known and recognized in his community and by his clientele as an osteopathic physician who is specializing in the practice of ophthalmology and/or otorhinolaryngology, in orofacial plastic

surgery, or a specialty coming under the jurisdiction of this Board. He must be able to show evidence of conformity to the standards set in the Code of Ethics of the American Osteopathic Association.

(f) He must provide notarized documentary evidence of a minimum of 3 years of special training in ophthalmology and/or otorhinolaryngology, or in orofacial plastic surgery, after the required 1 year of internship, or its equivalent, but not necessarily running 3 consecutive years. In the case of applicants who graduated prior to 1946, this Board may modify the requirement of 3 years of special training by allowing a credit of 1 year of special training for each 5 years of specialty practice, for a total of not to exceed 2 years of the requirement, but in no case may such applicant be accepted for examination without at least 1 year of special training. This training shall include:

(i) Advanced study in the sciences: Anatomy, physiology, biochemistry, pathology, pharmacology, and such other basic sciences as are necessary to a mature and comprehensive understanding of the prevention, diagnosis, therapy, and management of the disorders involved in the specialty.

(ii) Active experience in the diagnosis and treatment in such amount and diversity that it will assure adequate training in the specialty.

The special training may be provided in colleges, laboratories, clinics, hospitals, or other facilities satisfactory to this Board, or by serving an acceptable assistantship to or studying under the preceptorship of a qualified specialist in this field, supplemented by prescribed study conforming to a plan approved by this Board.

The minimum 3-year period of special training may be made up of varying combinations of the several types mentioned above, as determined by this Board.

(a) The training may consist of a 5-year assistantship to a certified specialist approved by this Board and by the approving agencies of the American Osteopathic Association, during which time he shall have assisted in at least 300 major surgical operations and shall have devoted at least 50 per cent of his time to the training program, followed by at least 2 years of successful specialty practice.

(b) The training may consist of 3 years of full-time assistantship to a certified specialist approved by this Board, and by the approving agencies of the American Osteopathic Association, in both hospital and office practice, followed by at least 2 years of successful specialty practice.

(c) The training may consist of an approved hospital residency in the specialty of not less than 2 years' time, followed by 2 years' assistantship to a certified specialist approved by this Board and 2 years of successful specialty practice.

It shall be this Board's duty to assist applicants in determining a suitable program of special training, but it is not this Board's function to supply the training. This Board will recognize as proper institutions for securing this training those institutions which are approved for special training by the approving agencies of the American Osteopathic Association, together with such others as this Board may determine to possess facilities and personnel adequate to provide proper training.

(g) He shall provide notarized documentary evidence that he has performed 100 major surgical operations in which he was the responsible surgeon.

(h) He shall present detailed case records acceptable to the American Osteopathic Board of Ophthalmology and Otorhinolaryngology of twenty-five major procedures in which he was the responsible surgeon, and handled within the past 5 years. These records shall include history, physical examination, routine laboratory work, special laboratory work, preoperative diagnosis, detailed findings, detailed operative procedure, postoperative diagnosis, the progress notes, gross and histological description and diagnosis of excised tissue, and a case summary.

(i) An applicant for certification by this Board who graduated prior to 1936, and who was engaged in the practice of his specialty by 1939 or prior thereto, and who meets the general requirements stated in Section 1, (a), (b), (c), and (d), and who has maintained appropriate activity in American Osteopathic Association organizational work, specialty societies, hospital staff work, the pursuit of periodic postgraduate work, contributions to professional literature, or otherwise has indicated his consistent interest and competence in his specialty, the requirements of this article Section 1, paragraphs (f) and (h) may be waived, and he may be recommended for certification after passing an appropriate oral and/or clinical examination. The final date for accepting applications under this classification shall be May 1, 1961.

(j) As a primary prerequisite for certification in a specialty under the jurisdiction of this Board, the applicant must show evidence of a well-developed understanding of the osteopathic principles and a demonstrated ability to apply these principles.

AMERICAN OSTEOPATHIC BOARD OF PATHOLOGY

Norman W. Arends, Chairman, Huntington Woods, Michigan
Dorsey A. Hoskins, Vice Chairman, Kansas City, Missouri
Boyd B. Button, Portland, Maine
William J. Loos, Detroit, Michigan
Robert P. Morhardt, South Pasadena, California
O. Edwin Owen, Secretary-Treasurer, Philadelphia, Pennsylvania

DEFINITION OF SPECIALTY PRACTICE

Sec. 1. For the purpose of the operation of this Board the following divisions of practice are defined:

(a) The practice of clinical pathology shall consist of and include all phases of general clinical laboratory work, hematology, bacteriology, mycology, parasitology, serology, toxicology, and applied biochemistry.

(b) The practice of anatomic pathology shall consist of and include all aspects of histopathology, surgical pathology, autopsy surgery, and their teaching.

(c) The practice of pathology shall consist of and include surgical pathology, autopsy surgery, histopathology and clinical pathology.

REQUIREMENTS FOR CERTIFICATION

Each applicant for examination for certification in clinical pathology or pathology, or any specialty coming under the jurisdiction of the American Osteopathic Board of Pathology, must present evidence that he has met the following minimum requirements.

a. Educational qualifications

1) An applicant must be a graduate of an osteopathic college approved by the American Osteopathic Association.

2) Internship

a) One year of internship, preferably a rotating internship, in a hospital approved for intern training by the American Osteopathic Association, or under exceptional circumstances other equivalent institutional training for a period of 1 year satisfactory to this Board.

b) An internship of 9 months shall constitute a recognized full internship if served during World War II as prescribed by the Selective Service Board and when such internships were recognized by the American Osteopathic Association as full internships.

c) If graduated in 1942 or prior thereto, the applicant must have had experience and/or training equivalent to that of an acceptable internship, as determined by this Board.

3) Special training

a) Pathology

A period of not less than 3 years of special training is required, after the required 1 year of internship or its equivalent as defined above (a, 2), but not necessarily immediately following the internship nor running 3 consecutive years.

b) Clinical pathology

A period of not less than 3 years of special training is required, after the required 1 year of internship or its equivalent as defined above (a, 2), but not necessarily immediately following the internship nor running 3 consecutive years.

c) Institutions approved for special training

(1) This Board shall accept special training in pathology or clinical pathology in institutions which meet the Board's requirements and are approved for the specific special training by the approving agencies of the American Osteopathic Association.

(2) This Board requires that the laboratory be under the personal direction of a specialist in pathology (or for

clinical pathology, a specialist in clinical pathology) recognized by this Board as capable of proper and thorough teaching of the trainee. He need not be certified but certification in the specialty is preferable.

(3) The laboratory, to be satisfactory, must have an annual minimal volume as follows:

2,000 determinations in hematology;
1,000 determinations in blood chemistry;
1,500 determinations in bacteriology, mycology, parasitology, and serology;
2,000 determinations in urinalyses, basal metabolism tests, electrocardiographs, gastric analyses, etc., and general miscellaneous laboratory work.

In addition, for pathology, the following minimal volume is required:

1,000 surgical-case tissues;
Postmortem examination of 35 per cent of the deaths in the hospital. A postmortem examination constitutes at least a thorough examination of the trunk in selected cases, additional explorations of the head, extremities, spinal cord, etc.

(4) The laboratory must have an adequate library in the specialty and in related sciences and fields of practice available to the trainee.

(5) The approval of the laboratory is on an annual basis.

(6) If a laboratory loses its status of approval, a trainee in that laboratory shall be given credit for the time spent in special training only during its period of approval.

d) Programs of special training

(1) The special training program must meet the minimum requirements established by the American Osteopathic Board of Pathology.

(2) The special training program must be approved by the Bureau of Hospitals if the trainee is classified as serving a residency.

(3) The special training program must be approved by the Committee on Accreditation of Postgraduate Training of the Bureau of Professional Education and Colleges if it is other than a residency. This program may be:

i) Fellowships: a graduate training program of a recognized college of osteopathy,

ii) Preceptorships: training programs of a qualified individual,

iii) Miscellaneous: other recognized postgraduate courses given by clinics, colleges, etc.

(4) Residency training, fellowship training, etc., may not be carried out simultaneously in the same laboratory.

(5) The program must meet the requirements to thoroughly train the individual in clinical pathology and/or pathology in all of the branches as defined in 1, a), b), above.

(6) This Board requires the following minimum requirements for approval of a program:

(a) Pathology

This special training shall include:

1. One year's clinical pathology training subdivided as follows:
   i) 3 months' hematology service;
   ii) 3 months' blood chemistry service;
   iii) 3 months' bacteriology, mycology, parasitology, and serology service;
   iv) 3 months' urinalyses and miscellaneous tests and general laboratory work service.
2. Two years' tissue pathology and autopsy surgery

(b) Clinical pathology

This special training shall include:

1. One year's service embracing the four divisions as stated above in (6), (a), 1;
2. Two years in the laboratory.

(c) A year is defined as 50 weeks of a minimum of 40 hours per week.

(d) Attendance at periodic clinicopathologic seminars and/or submission of original theses, the number and character to be determined by the trainer.

e) Status of the trainee

(1) A resident training program comes under the jurisdiction of the Bureau of Hospitals of the American Osteopathic Association. It is defined as a full-time training period appropriate to the specialty and of not less than 1 year's duration spent in an approved osteopathic hospital.

(2) Fellowship training programs come under the jurisdiction of the Committee on Accreditation of Postgraduate Training of the Bureau of Professional Education and Colleges.

(3) An individual may train as a resident or as a Fellow as long as the requirements of the special training program are fulfilled in an institution approved for the special training. Furthermore, a combination of both types may be served if desired or necessary to secure adequate training and may be served in more than one approved laboratory and under more than one qualified specialist.

(4) The trainee must register with this Board within 30 days from the time he begins the special training in his specialty. Forms for registration are available from the Secretary-Treasurer of this Board.

f) Modification of requirements

The requirements of Article IV, Section 1, f) and h) of the Bylaws may be waived and the applicant recommended for certification after passing an appropriate oral and/or clinical examination, if the applicant was engaged in the practice of his specialty by 1939, or prior thereto, and who graduated prior to 1936, and who meets the general requirements as follows:

(1) He must be a graduate of an approved osteopathic college.

(2) He must be licensed to practice in the state or territory where he conducts his specialty practice.

(3) He must have been a member in good standing of the American Osteopathic Association and of his state or divisional society for a continuous period of at least 3 years immediately prior to application for examination.

(4) He must have satisfactorily completed an internship of at least 1 year in a hospital approved for intern training by the American Osteopathic Association or satisfactory to this Board. If graduated in 1942 or prior thereto, the applicant must have had training of value equivalent to that of an acceptable internship as determined by this Board.

(5) He must be able to show evidence of conformity to the standards set in the Code of Ethics of the American Osteopathic Association.

(6) He must have maintained appropriate activity in American Osteopathic Association organizational work, specialty societies, hospital staff work, the pursuit of periodic postgraduate work, contributions to professional literature or otherwise have indicated his consistent interest and competence in his specialty.

The final date for accepting applications under this classification shall be May 1, 1961.

g) Modification of requirements by previous commitments by this Board.

In the case of applicants to whom this Board has made definite commitments that a particular program which commenced prior to December 15, 1946, would meet the requirements for admission to examination for certification, the Board may waive such requirements of Article IV, Section 1, paragraphs d), f), and g) of the Bylaws as would prevent the admission of such applicants to examination. The requirements of the Bylaws in force at the time the commitments were made shall apply.

h) Modification of requirements for those who have engaged in specialty practice of pathology or clinical pathology.

If the applicant graduated prior to 1946, this Board may modify the specific requirement of special training by allowing a credit of 1 year of special training for each 5 years of specialty practice for total credit of not to exceed 2 years of the requirement. In no case may such applicant be accepted for examination without at least 1 year of special training as defined.

b. Years of specialty practice

In addition to completing the required special training, the applicant shall have engaged in specialty practice in his field for not less than 2 years before admission to the examination. Specialty practice is defined as a minimum of 90 per cent of

the time occupied in professional practice in the specialty, which may include active specialty practice, teaching of pathology, or administration of a department of pathology or researh. An affidavit in regard to the above may be required by the Credentials Committee of this Board in evaluating the applicant's application.

c. Membership requirements

The applicant must have been a member in good standing of the American Osteopathic Association and of his state or divisional society for a continuous period of at least 3 years immediately prior to application for examination by this Board.

d. Licensure requirement

He must be licensed to practice in the state or territory where he conducts his specialty practice.

e. Code of Ethics requirement

He must be able to show evidence of conformity to the standards set in the Code of Ethics of the American Osteopathic Association.

f. Following satisfactory compliance with the prescribed requirements as to special training and specialty practice, the applicant shall be required to pass appropriate examinations planned to evaluate his understanding of the scientific bases of the problems involved in the specialty, and his familiarity with the current advances in the specialty, and the possession of sound judgment and of a high degree of skill in the diagnostic and therapeutic procedures involved in the practice of the specialty. Oral, written, and clinical examinations shall be conducted and required in the case of each applicant. This Board may conduct the oral and written examinations at the end of the required 3 years of special training, but shall not conduct the practical or clinical examination until the required 2 years of specialty practice have been completed. The members of this Board shall personally review, if not perform, the grading of each written examination. The conduct of the clinical examinations may be delegated to committees of not fewer than two individuals maturely qualified in the specialty. A full description of the method of conducting the examinations shall be formulated in this Board's Regulations and Requirements, and provision for re-examination shall be made.

AMERICAN OSTEOPATHIC BOARD OF PEDIATRICS

William S. Spaeth, Chairman, Drexel Hill, Pennsylvania
Ruth Elizabeth Tinley, Vice Chairman, Philadelphia, Pennsylvania
Patrick D. Philben, Dallas, Texas
Nelson D. King, Kirksville, Missouri
Evangeline N. Percival, Secretary-Treasurer, Los Angeles, California
Betsy B. MacCracken, Assistant Secretary-Treasurer, Hollywood, California

DEFINITION OF SPECIALTY PRACTICE

The practice of pediatrics shall consist of and include the utilization of all of those procedures necessary to the study and the management of the care of infants and children, as well as the prevention, diagnosis, and treatment of the diseases of infants and children from birth up to the average age of sexual maturity.

REQUIREMENTS FOR CERTIFICATION

Each applicant for certification under the jurisdiction of this Board shall present evidence that he has met the following minimum requirements:

1. He shall have been graduated from an approved osteopathic college at least 6 years prior to consideration of his application by the American Osteopathic Board of Pediatrics.

2. He must be licensed to practice in the state or territory where he conducts his specialty practice.

3. He must have been a member in good standing of the American Osteopathic Association and of his state or divisional society for a continuous period of at least 3 years immediately prior to making application for examination by this Board.

4. He shall be, and if certified continue to be, favorably known and recognized in his community and by his clientele as an osteopathic physician who is specializing in the practice of pediatrics and shall publicize his osteopathic affiliation in an ethical manner.

5. He must be able to show evidence of conformance to the standards set in the Code of Ethics of the American Osteopathic Association.

6. He shall have satisfactorily completed an internship of at least 1 year in a hospital approved for intern training by the American Osteopathic Association or other equivalent institutional training satisfactory to this Board. If the applicant was graduated in 1942 or prior thereto, he must have had training of value equivalent to that of an acceptable internship as determined by this Board.

7. He shall provide notarized documentary evidence of at least 3 years of special training related to the specialty after the required 1 year of internship or its equivalent, but not necessarily immediately following the internship nor running 3 consecutive years. In the case of applicants graduated prior to 1946, the Board may modify the requirements of 3 years of special training by allowing a credit of 1 year of special training for each 5 years of specialty practice for a total credit not to exceed 2 years of the requirement. In no case may such applicant graduated prior to 1946 be accepted for examination without at least 1 year of special training as defined. This training shall include:

(a) Advanced studies in the sciences: Anatomy, physiology, biochemistry, pathology, pharmacology, bacteriology, immunology, parasitology, and such other basic sciences as are necessary to a mature and comprehensive understanding of the prevention, diagnosis, therapy, and management of the disorders involved in the specialty.

(b) Active experience in such amount and diversity in the practice of this specialty that it will assure adequate training in the specialty. The special training may be provided in colleges, laboratories, clinics, hospitals, or other facilities satisfactory to this Board, or by serving an acceptable assistantship to or studying under the preceptorship of a qualified specialist in this field, supplemented by prescribed study conforming to a plan approved by this Board. The minimum 3-year period of special training may be made up of varying combinations of the several types mentioned above as determined by this Board. It shall be this Board's duty to assist applicants in determining a suitable program of special training, but it is not this Board's function to supply the training. This Board will recognize as proper institutions for securing the special training those institutions which are approved by the approving agencies of the American Osteopathic Association together with such others as this Board may determine to possess facilities and personnel adequate to provide proper training.

8. Subsequent to completing the required special training, the applicant shall have engaged in specialty practice for not less than 2 years before admission to examination. To be considered as engaging in a specialty practice, the applicant shall devote 60 per cent or more of his time to the practice of pediatrics.

9. Following satisfactory compliance with the prescribed requirements as to special training and specialty practice, the applicant shall be required to pass appropriate examinations planned to evaluate his understanding of the scientific bases of the problems involved in this specialty, his familiarity with the current advances in the specialty field, and the possession of sound judgment and of a high degree of skill in the diagnostic and therapeutic procedures involved in the practice of the specialty. Oral, written, and clinical examinations shall be conducted and required in the case of each applicant.

10. In the case of any applicant who was engaged in the practice of his specialty by 1939 or prior thereto and who graduated prior to 1936, and who meets the general requirements as stated in Article IV, Section 1, (a), (b), (c), (d), and (e) of the Bylaws, and has maintained appropriate activity in American Osteopathic Association organizational work, specialty societies, hospital staff work, the pursuit of periodic postgraduate work, contributions to professional literature, or otherwise has indicated his consistent interest and competence in his specialty, the requirements of Article IV, Section 1, (f) and (h) of the Bylaws may be waived, and he may be recommended for certification after passing an appropriate oral and/or clinical examination. The final date for accepting applications under this classification shall be May 1, 1961.

11. Each applicant for certification coming within the jurisdiction of this Board shall prepare and submit for publication

at least three articles on pediatrics during the 3 years of special training and one article in each of the 2 years of specialty practice and shall forward copies of these articles to the Secretary-Treasurer of the American Osteopathic Board of Pediatrics.

AMERICAN OSTEOPATHIC BOARD OF PHYSICAL MEDICINE AND REHABILITATION

William W. W. Pritchard, Chairman, Pasadena, California
Wallace M. Pearson, Vice Chairman, Kirksville, Missouri
Robert C. Ruenitz, Secretary-Treasurer, Los Angeles, California

DEFINITION OF SPECIALTY PRACTICE

The practice of physical medicine and rehabilitation shall consist of and include the use of all medical measures, especially those in the physical field, which will hasten the recovery and restoration of the ill or handicapped to the fullest physical, mental, social, vocational, and economic usefulness of which he or she is capable.

REQUIREMENTS FOR CERTIFICATION

To be eligible to receive a certificate of specialization from this Board, the applicant must meet all of the following minimum requirements, excepting as provided in Article IV, Section 2 of the Bylaws of this Board:

a. He must be a graduate of an approved osteopathic college.

b. He must be licensed to practice in the state or territory where he conducts his specialty practice.

c. He must have been a member in good standing of the American Osteopathic Association and of his state or divisional society for a continuous period of at least 3 years prior to application for examination by this Board.

d. He must have satisfactorily completed an internship of at least 1 year in a hospital approved for intern training by the American Osteopathic Association or satisfactory to this Board. If graduated in 1942 or prior thereto, the applicant must have had training of value equivalent to that of an acceptable internship as determined by this Board.

e. He must practice as a specialist in his field for a period of at least 2 years subsequent to the minimum 3 years of special training.

f. Percentage of practice in the field covered by this specialty shall not be less than 60 per cent. An affidavit of proof of practice may be required by this Board from the applicant.

g. Number of case records

1. The applicant must present evidence of handling on his own responsibility not less than 200 cases applicable to this specialty. This evidence must include: history, structural examinations, general physical examination, record of special muscle and nerve testings where applicable, treatment prescribed, and progress notes of the case, including termination of treatment or at the latest date patient was observed.

2. Documentary evidence of the above may be requested by this Board.

3. These records become the property of this Board and shall be placed on file with the Secretary-Treasurer for a minimum of 3 years.

h. Thesis

1. The applicant shall submit reprints or copies of representative articles which have been published or have been prepared for publication. The thesis, a monograph, shall be an original investigation in the specialty field as conducted by the applicant or a review of the literature to which the applicant shall add personal experiences referable to the subject matter.

2. This Board shall submit to the applicant three titles as suggestions for the monograph. If these are not acceptable to the applicant, the applicant may submit a title of his choice to the Board for approval.

3. The title of the thesis must be approved by this Board and the title shall be recorded in the office of the Secretary-Treasurer.

4. The form of the thesis shall follow a stylebook of the applicant's choosing. The author and title of the stylebook shall be included in the bibliography.

5. Sufficient copies shall be submitted to the Secretary-Treasurer of this Board to permit distribution of the thesis to the members of the Examination Committee.

i. Training

A period of not less than 3 years of special training related to the specialty shall be required, after the required 1 year of internship or its equivalent, but need not immediately follow the internship, nor run 3 years consecutively. In the case of applicants who graduated prior to 1946, this Board may modify the requirements of 3 years' special training by allowing a credit of 1 year of special training for each 5 years of specialty practice for a total credit of not to exceed 2 years of the requirement, but in no case may such an applicant graduated prior to 1946 be accepted for examination without at least 1 year of special training.

This training shall include:

1. Advanced study in the sciences: Anatomy, physics, physiology, biochemistry, pathology, pharmacology, and such other basic sciences as may be required by this Board.

2. Active experience in the diagnosis and treatment in such amount and diversity that it will assure adequate training in the specialty.

3. The clinical aspects of physical medicine:

a. Thermotherapy
Clinical applications of heat and cold, both local and general.

b. Hydrotherapy
Methods of employing hydrotherapeutic devices and procedures.

c. Electrotherapy
Clinical, diagnostic, and therapeutic uses of the constant current, interrupted current, sinusoidal current, and high frequency current.

d. Radiation therapy
Diagnostic and therapeutic uses of ultra-violet and infra-red radiation. (Therapeutic applications of roentgen rays and atomic radiation are not included in the field of physical medicine and rehabilitation.)

e. Kinesitherapy
Clinical uses in diagnosis and treatment by exercise.

f. Occupational therapy
Indications for and clinical applications of the various types.

g. Rehabilitation
The diagnostic and therapeutic use of convalescent reconditioning and rehabilitation of the seriously disabled person.

The special training may be provided in colleges, laboratories, clinics, hospitals, or other facilities satisfactory to this Board, or by serving an acceptable assistantship to or studying under the preceptorship of a qualified specialist in this field, supplemented by prescribed study conforming to a plan approved by this Board.

The minimum 3-year period of special training may be made up of varying combinations of several types mentioned above, as determined by this Board.

It shall be this Board's duty to assist applicants in determining a suitable program of special training, but it is not this Board's function to supply the training.

This Board will recognize as proper institutions for securing this training those institutions which are approved for special training by the approving agencies of the American Osteopathic Association, and such others as this Board may determine to possess facilities and personnel adequate to provide proper training.

j. Modification of Requirements

In the case of any applicant who was engaged in the practice of his specialty by 1939 or prior thereto, and who graduated prior to 1936, and who meets the general requirements stated in Article IV, Section 1, (a), (b), (c), (d), and (e) of the Bylaws of this Board, and has maintained appropriate activity in American Osteopathic Association organizational work, specialty societies, hospital staff work, the pursuit of periodic postgraduate work, contributions to professional literature or otherwise has indicated his consistent interest and competence in his specialty field, the requirements of Article IV, Section 1, paragraphs (f) and (h) of the Bylaws of this Board may be waived and he may be recommended for certification after passing an appropriate oral and/or clinical examination. The final

date for accepting applications under this classification shall be May 1, 1961.

k. Following satisfactory compliance with the prescribed requirements as to special training and specialty practice, the applicant shall be required to pass appropriate examinations planned to evaluate his understanding of the scientific bases of the problems involved in the specialty, his familiarity with the current advances in the specialty, and the possession of sound judgment and of a high degree of skill in the diagnostic and therapeutic procedures involved in the practice of the specialty. Oral, written, and clinical examinations shall be conducted and required in the case of each applicant. This Board may conduct the oral and written examinations at the end of the required 3 years of special training, but shall not conduct the practical or clinical examination until the required 2 years of specialty practice have been completed. The members of this Board shall personally review, if not perform, the grading of each written examination. The conduct of the clinical examinations may be delegated to committees of not fewer than two individuals maturely qualified in the specialty. A full description of the method of conducting the examination shall be formulated in this Board's Regulations and Requirements, and provision for re-examination shall be made.

AMERICAN OSTEOPATHIC BOARD OF PROCTOLOGY

Carl S. Stillman, Jr., Chairman, San Diego, California
George R. Norton, Vice Chairman, Fort Lauderdale, Florida
Lester I. Tavel, Houston, Texas
John W. Orman, Tulsa, Oklahoma
Carlton M. Noll, Secretary-Treasurer, Evergreen, Colorado

DEFINITION OF SPECIALTY PRACTICE

For the purpose of clarification the following division of specialty practice is defined:

a. The practice of proctology shall consist of and include the treatment of diseases and conditions originating within or affecting the anus, rectum, perianal and perirectal areas, and related or complicating conditions not including the use of major surgery.

REQUIREMENTS FOR CERTIFICATION

To be eligible to receive a certificate of specialization from the American Osteopathic Board of Proctology, the applicant must meet all of the following minimum requirements except as provided in Article IV, Section 2, of the Bylaws of the American Osteopathic Board of Proctology.

a. He must have been graduated from an approved osteopathic college at least 5 years prior to application.

b. He must be licensed to practice in the state or territory where he conducts his specialty practice.

c. He must have been a member in good standing of the American Osteopathic Association and of his state or divisional society for a continuous period of at least 3 years immediately prior to application for examination by this Board.

d. He must have satisfactorily completed an internship of at least 1 year in a hospital approved for intern training by the American Osteopathic Association or other equivalent institutional training satisfactory to this Board. If graduated in 1942 or prior thereto, the applicant must have had training of value equivalent to that of an acceptable internship as determined by this Board.

e. He shall be, and if certified continue to be, favorably known and recognized in his community and by his clientele as an osteopathic physician who is specializing in the practice of proctology and shall publicize his osteopathic affiliation in an ethical manner.

f. He must be able to show evidence of conformity to the standards set in the Code of Ethics of the American Osteopathic Association.

g. A period of not less than 3 years of special training related to the specialty shall be required, after the required 1 year of internship, or its equivalent, but not necessarily immediately following the internship nor running 3 consecutive years, except that in the case of applicants who graduated prior to 1946, the Board may allow the requirement of 3 years of special training by allowing a credit of 1 year of special training for each 5 years of specialty practice for a total credit of not to exceed 2 years of the requirement, but in no case may an applicant graduated prior to 1946 be accepted for examination without at least 1 year of special training as defined. This training shall include:

(i) Advanced study in the sciences: Anatomy, physiology, biochemistry, pathology, pharmacology, and such other basic sciences as are necessary to a mature and comprehensive understanding of the prevention, diagnosis, therapy, and management of the disorders involved in the specialty.

The minimum requirement in the basic sciences shall be 100 clock hours subdivided as follows:

Anatomy 10 hours; physiology 10 hours; biochemistry 10 hours; pathology 10 hours; pharmacology 10 hours; bacteriology and parasitology 10 hours.

The balance of 40 hours shall include such other basic sciences as this Board may require from time to time.

(ii) Active experience in diagnosis and treatment in such amount and diversity that it will assure adequate training in the specialty.

h.. He must practice as a specialist in his field for a period of at least 2 years subsequent to the minimum 3 years of special training.

i. Training Requirements:

(1) Active experience in the diagnosis and treatment in such amount and diversity that it will assure adequate training in the specialty. The special training may be provided in colleges, laboratories, clinics, hospitals, or other facilities satisfactory to this Board, or by serving an acceptable assistantship to or studying under the preceptorship of a qualified specialist in this field, supplemented by prescribed study conforming to a plan approved by this Board.

The minimum 3-year period of special training may be made up of varying combinations of several types mentioned above, as determined by this Board. It shall be this Board's duty to assist applicants in determining a suitable program of special training, but it is not this Board's function to supply the training. This Board will recognize as proper institutions for securing this training those institutions which are approved for special training by the approving agencies of the American Osteopathic Association, together with such others as this Board may determine to possess facilities and personnel adequate to provide proper training.

j. Following satisfactory compliance with the prescribed requirements as to special training and specialty practice, the applicant shall be required to pass appropriate examinations planned to evaluate his understanding of the scientific bases of the problems involved in the specialty, his familiarity with the current advances in the specialty, and the possession of sound judgment and a high degree of skill in the diagnostic and therapeutic procedures involved in the practice of the specialty. Oral, written, and clinical examinations shall be conducted and required in the case of each applicant. This Board of specialty certification may conduct its oral and written examinations at the end of the required 3 years of special training, but shall not conduct the practical or clinical examination until the required 2 years of specialty practice have been completed. The members of this Board shall personally review, if not perform, the grading of each written examination. The conduct of the clinical examinations may be delegated to committees of not fewer than two individuals maturely qualified in the specialty.

k. In the case of any applicant who has engaged in the practice of his specialty by 1939, or prior thereto, and who graduated prior to 1936, and who meets the general requirements stated in Section 1, (a), (b), (c), (d), and (e) of the Bylaws of this Board, and has maintained appropriate activity in American Osteopathic Association organizational work, specialty societies, hospital staff work, the pursuit of periodic postgraduate work, contributions to professional literature, or otherwise has indicated his consistent interest and competence in his specialty, the requirements of Artcile IV, paragraphs (f) and (h) of the Bylaws of this Board may be waived and he may be recommended for certification after passing an appropriate oral and/or clinical examination. The final date for accepting applications under this classification shall be May 1, 1961.

l. Affidavit:

The applicant shall file with the Secretary-Treasurer of

this Board an affidavit in duplicate stating the percentage of his practice that was proctologic in character during the preceding 12-month period, based on the number of patients seen. An applicant must have a minimum of 75 per cent proctologic specialty practice to be eligible for examination.

m. Case Records:

The applicant must file with the Secretary-Treasurer of this Board true and authentic copies of 200 case records of proctologic cases he has cared for within the 4-year interval preceding the filing of his application. The applicant must file an affidavit in duplicate certifying that the records are exact copies of true and authentic records in his files and that he personally cared for the cases represented. The case records and affidavit must reach the Secretary-Treasurer of this Board not later than April 15th for the applicant to be eligible for examination at the following annual meeting of this Board. All records become the property of this Board and are not returnable to the applicant.

n. Scientific Article:

The applicant must file with the Secretary-Treasurer of this Board by April 15th of the year he desires examination, a 1,000-word article on a proctologic subject of his choosing or at the dictates of this Board. This Board may accept a previously published article on a proctologic subject. Grading of this scientific article will be based on English composition and neatness as well as upon the subject matter. Scientific articles must follow the standard in common use for composition in such articles.

AMERICAN OSTEOPATHIC BOARD OF RADIOLOGY

Paul T. Lloyd, Chairman, Philadelphia, Pennsylvania
Theodore C. Hobbs, Vice Chairman, Columbus, Ohio
George W. Rea, Kirksville, Missouri
Charles J. Karibo, Detroit, Michigan
Kenneth L. Wheeler, Philadelphia, Pennsylvania
John W. Tedrick, Denver, Colorado
Hervey S. Scott, Kansas City, Missouri
James N. Fox, Dayton, Ohio
D. W. Hendrickson, Secretary-Treasurer, Wichita, Kansas

DEFINITION OF SPECIALTY PRACTICE

For the purposes of clarification the following definitions of the divisions of the special fields in radiology are given:

a. The practice of diagnostic roentgenology shall consist of and be confined to the performance and interpretation of diagnostic roentgenological procedures.

b. The practice of roentgenology shall consist of and be limited to the performance and interpretation of diagnostic roentgenological procedures and the use of roentgen rays in therapy.

c. The practice of radiation therapy shall consist of treatment of human disease by the use of roentgen rays, radium, and artificial radioactive substances.

d. The practice of radiology shall consist of and include the performance and interpretation of diagnostic roentgenological procedures and the diagnosis and treatment of human disease by the use of roentgen rays, radium, and artificial radioactive substances.

REQUIREMENTS FOR CERTIFICATION

The American Osteopathic Board of Radiology will accept for certification only osteopathic physicians who are specializing in one of the divisions of radiology coming under the jurisdiction of this Board. The proportion of specialization in practice which is acceptable to the Board may vary according to the size of the community and the conditions under which the applicant practices. The applicant must be engaged in the practice of one of the divisions of radiology coming under the jurisdiction of this Board, i.e., diagnostic roentgenology, roentgenology, radiology, or radiation therapy, and he must present evidence satisfactory to the Board that he is so practicing.

Each applicant for certification under this Board must present evidence that he has met the following minimum requirements:

1. He shall have been graduated from an approved osteopathic college at least 5 years prior to consideration of his application by this Board.

2. He must have been a member in good standing of the American Osteopathic Association and of his state or divisional society for a continuous period of at least 3 years immediately prior to making application for examination by this Board.

3. He shall be, and if certified continue to be, favorably known and recognized in his community and by his clientele as an osteopathic physician who is specializing in the practice of one of the divisions of radiology coming under the jurisdiction of this Board and shall publicize his osteopathic affiliations in an ethical manner.

4. He must have satisfactorily completed an internship of at least 1 year in a hospital approved for intern training by the American Osteopathic Association or satisfactory to this Board. If graduated in 1942 or prior thereto, the applicant must have had training of value equivalent to that of an acceptable internship as determined by this Board. The intern year of 9 months as prescribed by the Selective Service Board during World War II shall be acceptable as fulfilling this requirement.

5. He must be licensed to practice in the state or territory where he conducts his specialty practice.

6. He must be able to show evidence of conformity to the standards set in the Code of Ethics of the American Osteopathic Association.

7. He shall provide documentary evidence of at least 3 years of special training related to the specialty for which he is seeking certification, after the required 1 year of internship, or its equivalent, but not necessarily running 3 consecutive years. This Board may modify the requirement of 3 years' special training by allowing a credit of 1 year of special training for each 5 years of specialty practice for a total credit not to exceed 2 years of the requirement, for physicians who graduated prior to 1946, but in no case may such applicant be accepted for examination without at least 1 year of special training as defined. This training shall include:

(a) Advanced study in the sciences: Anatomy, physiology, biochemistry, pathology, pharmacology, and such other basic sciences as are necessary to a mature and comprehensive understanding of the prevention, diagnosis, therapy, and management of the disorders involved in the specialty.

(b) Active experience in such amount and diversity that it will assure adequate training in the specialty.

The special training may be provided in colleges, laboratories, clinics, hospitals, or other facilities satisfactory to this Board, or by serving an acceptable assistantship to or studying under the preceptorship of a qualified specialist in this field, supplemented by prescribed study conforming to a plan approved by this Board.

The minimum 3-year period of special training may be made up of varying combinations of the several types mentioned above, as determined by this Board. It shall be this Board's duty to assist applicants in determining a suitable program of special training, but it is not this Board's function to supply the training. This Board will recognize as proper institutions for securing this training those institutions which are approved for special training by the approving agencies of the American Osteopathic Association, together with such others as this Board may determine to possess facilities and personnel adequate to provide proper training.

8. In addition to completing the required special training, the applicant shall have engaged in specialty practice in his field for not less than 2 years before admission to examination.

9. Following satisfactory compliance with the prescribed requirements as to special training and specialty practice, the applicant shall be required to pass appropriate examinations planned to evaluate his understanding of the scientific bases of the problems involved in the specialty, his familiarity with the current advances in the specialty, and the possession of sound judgment and of a high degree of skill in the diagnostic and therapeutic procedures involved in the practice of the specialty. Oral, written, and clinical examinations shall be conducted and required in the case of each applicant. This Board may conduct the oral and written examinations at the end of the required 3 years of special training, but shall not conduct the practical or clinical examination until the required 2 years of specialty practice have been completed. The members of this Board shall personally review, if not perform, the grading of each written examination. The conduct of the clinical examinations may be delegated to committees of not fewer than two individuals ma-

turely qualified in the specialty. A full description of the method of conducting the examination shall be formulated in this Board's Regulations and Requirements, and provision for re-examination shall be made.

10. In the case of any applicant who was engaged in the practice of his specialty by 1939, or prior thereto, and who graduated prior to 1936, and who meets the general requirements as stated above, and has maintained appropriate activity in American Osteopathic Association organizational work, specialty societies, hospital staff work, the pursuit of periodic postgraduate work, contributions to professional literature, or otherwise has indicated his consistent interest and competence in his specialty, the requirements of Article IV, Section 1, paragraphs (f) and (h) of the Bylaws may be waived and he may be recommended for certification after passing appropriate oral and/or written clinical examinations. The final date for accepting applications under this classification shall be May 1, 1961.

11. Applicants for certification in any of the divisions of radiology shall prepare a thesis upon some phase of radiology as a part of the written examination for certification.

AMERICAN OSTEOPATHIC BOARD OF SURGERY

James M. Eaton, Chairman, Philadelphia, Pennsylvania
Ernest G. Bashor, Vice Chairman, Los Angeles, California
Don E. Ranney, Grosse Pointe Woods, Michigan
Robert F. McBratney, Los Angeles, California
K. George Tomajan, Boston, Massachusetts
Paul R. Koogler, Battle Creek, Michigan
Arthur M. Flack, Jr., Philadelphia, Pennsylvania
Howard A. Graney, Des Moines, Iowa
Charles L. Ballinger, Secretary-Treasurer, Toledo, Ohio
Mrs. E. F. Martin, Corresponding Secretary, Coral Gables, Florida

DEFINITION OF SPECIALTY PRACTICE

For the purpose of clarification the following divisions of specialty practice coming under the jurisdiction of the American Osteopathic Board of Surgery are defined.

1. The practice of surgery shall consist of and include that branch of medical science, art, and practice which is concerned with the correction of deformities and defects, the repair of injuries, the diagnosis and care of disease, the relief of suffering, and the prolongation of life by manual and instrumental means.

2. The practice of gynecological surgery shall consist of and include that branch of medical science, art, and practice which is concerned with major operative procedures upon the female generative system or structures related thereto within the lower abdomen and pelvis, and major plastic procedures upon the vaginal tract by manual and instrumental means.

3. The practice of neurosurgery shall consist of and include that branch of medical science, art, and practice which is concerned with the correction of deformities and defects, the repair of injuries, and the diagnosis and care of diseases of the nervous system by manual and instrumental means.

4. The practice of orthopedic surgery shall consist of and include that branch of medical science, art, and practice which is concerned with the correction of deformities and defects of the bony skeleton and associated structures, the repair of injuries to the bones and joints, and the diagnosis and care of diseases of the bones and joints by manual and instrumental means.

5. The practice of peripheral vascular surgery shall consist of and include that branch of medical science, art, and practice which is concerned with the correction of deformities and defects of the peripheral vessels, the repair of injuries to the peripheral vessels, and the diagnosis and care of peripheral vascular diseases by manual and instrumental means.

6. The practice of plastic surgery shall consist of and include that branch of medical science, art, and practice which is concerned with the repair of injuries and the correction of defects and deformities to the integument, muscles, and the bony skeleton and associated structures of the body by manual and instrumental means.

7. The practice of urological surgery shall consist of and include that branch of medical science, art, and practice which is concerned with the correction of deformities and defects, the repair of injuries, and the diagnosis and care of diseases of the urogenital organs by manual and instrumental means.

BASIC REQUIREMENTS FOR CERTIFICATION

The American Osteopathic Board of Surgery shall accept for examination for certification only osteopathic physicians who are specializing in one of the specialty fields coming under the jurisdiction of this Board. The proportion of specialization in practice which is acceptable to this Board may vary according to the size of the community and the conditions under which the applicant practices.

The applicant must be engaged in the practice of surgery or one of the specialty fields coming under the jurisdiction of this Board, i.e., neurosurgery, gynecological surgery, orthopedic surgery, peripheral vascular surgery, plastic surgery, urological surgery, or anesthesiology and he must present evidence to this Board that he is so practicing.

It shall be the policy of the American Osteopathic Board of Surgery to require each applicant to submit a list of his surgical operative procedures (or anesthetic procedures) for the 12-month period immediately prior to making application, naming the type of operation, the hospital in which the operation was performed, the patient's initials, the hospital case number, the pathologist's report, and the case termination.

This list shall be certified by the administrator of the hospital in which the surgeries were performed and shall be accompanied by a supplementary list in which the operative procedures for the year are broken down into segregated totals indicating the number of each type of operative procedure performed by the applicant during the 12-month period. The totals of both lists must agree.

It shall be the policy of this Board to require the Credentials Committee to carefully scrutinize the scope of surgical or anesthetic practice represented in each applicant's report. Unless an applicant presents evidence that the scope of his specialty practice is sufficiently varied and of a major character (as shown by his hospital records) the Credentials Committee shall not recommend him for examination without an examination by one or more certified specialists not located in the applicant's immediate vicinity who have been appointed by this Board for the purpose of determining the applicant's qualifications.

It shall be the policy of this Board to admit to examination only those surgeons or anesthetists who qualify as recognized specialists in their respective fields in the community in which they conduct their specialty practice.

Each applicant for examination for certification in surgery or one of the surgical specialty fields coming under the jurisdiction of the American Osteopathic Board of Surgery must present evidence that he has met the following minimum requirements:

1. He shall have graduated from an approved osteopathic college at least 7 years prior to consideration of his application by this Board.

2. He shall be licensed to practice in the state or territory where he conducts his specialty practice.

3. He shall have been a member in good standing of the American Osteopathic Association and of his state or divisional society for a continuous period of at least 3 years immediately prior to making application for examination by this Board.

4. He shall be, and if certified continue to be, favorably known and recognized by his clientele as an osteopathic physician who is specializing in the practice of surgery or a surgical specialty coming under the jurisdiction of this Board and shall publicize his osteopathic affiliations in an ethical manner.

5. He shall be able to show evidence of conformity to the standards set in the Code of Ethics of the American Osteopathic Association.

6. He shall have had an internship of at least 1 year in a hospital acceptable to this Board. The intern year of 9 months as prescribed by the Selective Service Board during World War II shall be acceptable. For physicians who graduated in 1942 or prior thereto this Board may accept other qualifications in lieu of internship where the applicant's surgical experience and ability are beyond question.

7. He shall provide notarized documentary evidence of a minimum of 3 years of formal training subsequent to his internship. This formal training program must be acceptable to

this Board and made up, either in whole or in part, of (a) an approved surgical residency; (b) approved preceptorship training programs which commenced after January 1, 1951, shall consist of 3 years for full-time training programs or 5 years for part-time training programs; (c) approved postgraduate work in surgery or the surgical sciences in a program acceptable to this Board. Not more than 1 year's credit shall be given for postgraduate work in approved graduate school programs.

During the period of his formal training, he shall have assisted in the performance of not less than 400 major surgical operations. By "first assistant" is mean one who, in addition to acting as first assistant at the operating table, has participated actively in the preoperative diagnostic procedures and postoperative care.

In qualifying for examination for certification only one credit for first assistantship is allowable for each case done by the surgeon regardless of the number of assistants working at the table.

8. He shall provide evidence to this Board that he has received satisfactory postgraduate training in the surgical sciences, including anatomy, physiology, biochemistry, pathology, and pharmacology.

The applicant who began a specialty training program after January 1, 1951, and who has pursued a training program other than a residency approved by the Board of Trustees of the American Osteopathic Association, shall provide evidence to this Board that he has received satisfactory postgraduate training in the surgical sciences, including anatomy, physiology, biochemistry, pathology, pharmacology, and such other basic sciences as are necessary to a mature and comprehensive understanding of the prevention, diagnosis, therapy, and management of the disorders involved in the specialty.

A minimum of 100 clock hours shall be required in the basic science training program, subdivided as follows:

a. A minimum of 10 clock hours each in the following subjects: anatomy, physiology, biochemistry, pathology, and pharmacology.

b. The remainder of the minimum required hours may be taken in any of the subjects mentioned or in other basic sciences related to the specialty.

Those applicants who qualify must submit acceptable documentary evidence, which may be further investigated at the discretion of this Board, of having pursued this advanced training in colleges, laboratories, clinics, hospitals, or other facilities satisfactory to this Board.

9. He must practice as a specialist in his field for a period of at least 2 years subsequent to the completion of the required minimum of 3 years of special training prior to being examined. He shall provide notarized documentary evidence that he has performed a minimum of 200 major surgical operations upon his own responsibility subsequent to the completion of the minimum required period of formal training.

An applicant's scope of surgical practice must be such that his records will show that he had handled and is capable of handling (as shown by his morbidity, mortality, and end results) major surgical procedures in his respective specialty field. In surgery this would include such procedures as thyroidectomies, gastrectomies, excision of the colon, etc. An applicant whose hospital records show that he has never performed what are commonly referred to as heavy surgical procedures on his own responsibility would not be eligible for admission to examination.

10. He shall demonstrate his fitness to take the examination in any other manner required by this Board.

11. He shall present detailed case records, acceptable to this Board, of 25 major surgical procedures in which he was the responsible surgeon and handled by him as a surgical problem within the past 3 years. These records shall include history, physical examination, routine and special laboratory examinations, preoperative diagnosis, detailed findings, detailed operative procedure, postoperative diagnosis, progress notes, gross and histological description and diagnosis of the excised tissue, and case summary.

12. In the case of any applicant who was engaged in the practice of surgery (or one of the specialty fields of surgery coming under the jurisdiction of this Board) by 1939, or prior thereto, and who graduated prior to 1936, and who meets the general requirements stated in Article IV, Section 1, (a), (b), (c), (d), and (e) of the Bylaws, and who has maintained appropriate activity in American Osteopathic Association organizational work, specialty societies, hospital staff work, the pursuit of periodic postgraduate work, contributions to professional literature, or otherwise has indicated his consistent interest and competence in his specialty field, the requirements of Article IV, Section 1, (f) and (h) of the Bylaws may be waived and the applicant may be recommended for certification after passing an appropriate oral and/or clinical examination. The final date for accepting applications under this classification shall be May 1, 1961.

NEUROSURGERY

Each applicant for examination for certification in neurosurgery must present evidence that he has met the minimum basic requirements.

1. Under requirement No. 7 he shall have assisted in the performance of not less than 400 major surgical operations, 200 of which must be of a major neurosurgical nature.

2. Under requirement No. 9, he shall have performed a minimum of 200 major surgical operations in which he was the responsible surgeon, 100 of which must be of a major neurosurgical nature.

3. Under requirement No. 11, the case records presented shall consist of 25 major neurosurgical procedures.

4. He shall demonstrate his fitness to take the examination in any other manner required by this Board.

5. If this Board approves his application as to qualifications for examination in neurosurgery, the Secretary-Treasurer shall request the American Osteopathic Board of Neurology and Psychiatry to consider the application and, if acceptable, to examine the applicant in neurology.

6. If the applicant is successful before the American Osteopathic Board of Neurology and Psychiatry, the American Osteopathic Board of Surgery shall be so informed and shall, in turn, examine the applicant in neurosurgery.

7. If the applicant is successful in the examination before the American Osteopathic Board of Surgery, this Board shall make recommendation for certification to the Advisory Board for Osteopathic Specialists according to the regular procedure.

8. Upon final approval by the Board of Trustees of the American Osteopathic Association, a special certificate shall be issued in neurosurgery by this Board, signed by the Chairman and Secretary-Treasurer of the American Osteopathic Board of Neurology and Psychiatry, in addition to the officers of the American Osteopathic Board of Surgery and the Executive Secretary of the American Osteopathic Association.

GYNECOLOGICAL SURGERY

Each applicant for examination for certification in gynecological surgery must present evidence that he has met the minimum basic requirements.

a) Under requirement No. 7, he shall have assisted in the performance of not less than 400 major surgical operations, 200 of which must be of a major gynecological nature. Not more than 25 per cent of any one surgical procedure shall be permitted for accreditation towards the required number of operative assistantships.

b) Under requirement No. 9, he shall have performed a minimum of 200 major surgical operations in which he was the responsible surgeon, 100 of which must be of a major gynecological nature. Not more than 25 per cent of any one surgical procedure shall be permitted for accreditation towards the required number of operative procedures performed on his own responsibility.

c) Under requirement No. 11, the case records presented shall consist of 25 major gynecological procedures.

d) He shall demonstrate his fitness to take the examination in any other manner required by this Board.

ORTHOPEDIC SURGERY

Each applicant for examination for certification in orthopedic surgery must present evidence that he had met the minimum basic requirements.

1. Under requirement No. 7, he shall have assisted in the performance of not less than 400 major surgical operations, 200 of which must be of a major orthopedic nature.

2. Under requirement No. 9, he shall have performed a minimum of 200 major surgical operations in which he was the responsible surgeon, 100 of which must be of a major orthopedic nature.

3. Under requirement No. 11, the case records presented shall consist of 25 major orthopedic procedures.

4. He shall demonstrate his fitness to take the examination in any other manner required by this Board.

PERIPHERAL VASCULAR SURGERY

Each applicant for examination for certification in peripheral vascular surgery must present evidence that he has met the minimum basic requirements.

1. Under requirement No. 7, he shall have assisted in the performance of not less than 400 major surgical operations, 200 of which must be of a major peripheral vascular nature.

2. Under requirement No. 9, he shall have performed a minimum of 200 major surgical operations in which he was the responsible surgeon, 100 of which must be of a major plastic surgical nature.

3. Under requirement No. 11, the case records presented shall consist of 25 major plastic surgical procedures.

4. He shall demonstrate his fitness to take the examination in any other manner required by this Board.

PLASTIC SURGERY

Each applicant for examination for certification in plastic surgery must present evidence that he has met the minimum basic requirements.

1. Under requirement No. 7, he shall have completed a minimum of 2 years of approved formal surgical training either in an approved residency or an approved full-time preceptorship training program followed by 1 or more years of acceptable training in the specialty field of plastic surgery. He shall have assisted in the performance of not less than 400 major surgical operations, 200 of which must be of a major plastic surgical nature.

2. Under requirement No. 9, he shall have performed a minimum of 200 major surgical operations in which he was the responsible surgeon, 100 of which must be of a major peripheral vascular nature.

3. Under requirement No. 11, the case records presented shall consist of 25 major peripheral vascular surgical procedures.

4. He shall demonstrate his fitness to take the examination in any other manner required by this Board.

5. A physician certified in surgery who desires to have his certification changed from surgery to plastic surgery shall be required to follow the prescribed procedure.

UROLOGICAL SURGERY

Each applicant for examination for certification in urological surgery must present evidence that he has met the minimum basic requirements.

1. Under requirement No. 7, he shall have assisted in the performance of not less than 400 major surgical operations, 200 of which must be of a major urological nature.

2. Under requirement No. 9, he shall have performed a minimum of 200 major surgical operations in which he was the responsible surgeon, 100 of which must be of a major urological nature.

3. Under requirement No. 11, the case records shall consist of 25 major urological procedures.

4. He shall demonstrate his fitness to take the examination in any other manner required by this Board.

Book reviews

(Continued from page 408)

▶ THE YEAR BOOK OF CANCER (1956-1957 Year Book Series). Compiled and Edited By Randolph Lee Clark, Jr., B.S., M.D., M.Sc. (Surgery), D.Sc. (Hon.), Houston, Texas; Director and Surgeon-in-Chief, The University of Texas M.D. Anderson Hospital and Tumor Institute; Professor of Surgery, The University of Texas Postgraduate School of Medicine; Clinical Professor of Surgery, Baylor University College of Medicine; Fellow, American College of Surgeons; and Russell W. Cumley, B.A., M.A., Ph.D., Houston, Texas; Director of Publications, the University of Texas M.D. Anderson Hospital and Tumor Institute; Professor of Medical Journalism, The University of Texas Postgraduate School of Medicine. Cloth. Pp. 572, with illustrations. Price $7.50. Year Book Publishers, 200 E. Illinois St., Chicago, 1957.

A significant addition to the Year Book series is this new annual on the subject of cancer. Because it would be impossible for the practicing physician to read even a sizable fraction of the current literature on the subject, this digest of current information should prove a most important aid to him.

Because so many specialties are involved in the diagnosis and treatment of cancer, a massive editorial board was employed to represent all the specialties and to choose the most significant from among 4,000 articles in some 500 medical journals. The physician-editors did their own abstracts, further insuring that the information chosen would be important and clinically usable.

▶ INTRODUCTION TO CLINICAL ENDOCRINOLOGY. By A. Stuart Mason, M.A., M.D., B.Ch. (Cantab.), M.R.C.S. (Eng.), M.R.C.P. (Lond.), Senior Lecturer, Medical Unit, The London Hospital; Consultant Physician, Department of Endocrinology, New End Hospital, Hampstead; Physician in Charge, Diabetic and Endocrine Unit, Oldchurch Hospital, Romford, Essex. Cloth. Pp. 192. Price $4.50. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1957.

This concise but adequate book presents an introduction to diseases of the endocrine glands. It is meant primarily for senior medical students and newly established physicians, but may be read with profit by any doctor.

After an excellent introduction to the general principles of the subject the author devotes a chapter to each gland. The material covers its anatomy, its hormone or hormones, their action, and disorders that result from dysfunction, together with causes, diagnosis, and treatment of the diseases.

Since the work pertains to clinical application, it omits such points as endocrine disorders other than of function, anything like a full discussion of differing views, and references to the literature—all of which may be found in textbooks on the subject. A short reading list is appended.

Aside from drawings of the chemical structure of the hormones, there are no illustrations. The author deliberately chose not to show the dramatic end products of endocrine dysfunction, believing that it might create in the young physician a visual bias against diagnosis from lesser signs and symptoms.

▶ TUBERCULOSIS: Every Physician's Problem. By J. Arthur Myers, M.D., Professor of Internal Medicine and Public Health, Medical and Graduate Schools, University of Minnesota, Minneapolis, Minnesota. Cloth. Pp. 290, with illustrations. Price $7.50. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1957.

Although great advances have been made in the control of tuberculosis, it still ranks eighth among the nation's leading killers. Because it affects people of all ages and stations and because many apparently healthy people are its carriers, every physician should make himself intensely aware of its components.

This small volume offers a comprehensive survey of the various aspects of tuberculosis, beginning with a history of its existence, which is followed by a detailed description of the tubercle bacillus and separate sections on the diagnosis, treatment, and prevention of clinical tuberculosis. Perhaps the most significant part is that entitled "Control to Eradication" in which progress in the methods of tuberculosis prevention and

detection is reviewed. Here anachronistic theories are brought to light and the role of the individual physician is pointed out. This part includes statistics from national surveys and suggestions for more improvement in the future.

Dr. Myers has done an outstanding job of writing about this subject in an interesting manner. His lucid style helps the reader to grasp the information easily and yet the material is covered accurately and completely. It is a book well worth reading.

▶ **MOVEMENT OF HEART AND BLOOD IN ANIMALS. An Anatomical Essay. By William Harvey. Translated from the original Latin by Kenneth J. Franklin and now published for The Royal College of Physicians of London. Cloth. Pp. 209. Price $3.50. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1957.**

The physician who has a lively interest in medical history and who wishes to obtain his information from original sources rather than papaphrased digests of important works will welcome this edition of William Harvey's famous essay. Both the Latin text and its new English translation are included. The book is fine in every respect, and is a significant publication for a thoughtful audience.

▶ **HEADACHE. Diagnosis and Treatment. By Robert E. Ryan, B.S., M.D., M.S., (in Otolaryngology), F.A.C.S., Department of Otolaryngology, St. Louis University School of Medicine; Associate Otolaryngologist, St. John's Hospital; Assistant Otolaryngologist, St. Louis University Group of Hospitals, St. Louis, Mo.; Diplomate, American Board of Otolaryngology; Fellow of American Academy of Ophthalmology and Otolaryngology; Former Fellow of Mayo Clinic, Rochester, Minn. Ed. 2. Cloth. Pp. 421, with illustrations. Price $6.75. C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1957.**

Believing that headache is too often "made light of" by the physician, the author has separated its causes into fifty-six incontrovertible categories with pathology, symptomatology, diagnosis, and treatment of each and, in most instances, an illustrative case report.

This second edition contains new chapters on histamine, tranquilizing drugs, facial neuralgia, and temporomandibular joint syndrome.

Some physicians could profit greatly by Dr. Ryan's painstaking classification of types of headache according to physiologic causes. His treatment of the subject is most refreshing in this day of the cursory physical examination and the tendency to label migraine, tension, alcoholic, hypertensive, premenstrual, and allergic headaches as psychogenic and to fob off the problem on a psychiatrist.

Which is not to say that the author is anti-psychiatry. He recommends it as ancillary treatment in several types of headache and freely admits its possible value by citing its successful use in cases other than his own.

Since the ubiquitous headache may confront both general practitioners and specialists, the book is highly recommended to the entire profession.

▶ **MAY'S MANUAL OF THE DISEASES OF THE EYE. For Students and General Practitioners. Revised and Edited by Charles A. Perera, M.D., Associate Clinical Professor, College of Physicians and Surgeons, Columbia University, New York; Attending Ophthalmologist, Presbyterian Hospital, New York; Consultant in Ophthalmology, Vassar Brothers Hospital, Poughkeepsie, New York. Ed. 22. Cloth. Pp. 518, with illustrations. Price $6.00. The Williams & Wilkins Co., Mount Royal and Guilford Aves., Baltimore 2, 1957.**

The twenty-second edition of this familiar manual is as comprehensive as the preceding editions. It remains a thoroughly useful and informative volume for both general practitioners and students.

Revisions include the deletion of obsolete material and the addition of such subjects as the use of Diamox, the classification of primary glaucoma, and the use of adrenal corticosteroids. The section dealing with estimation of loss of visual efficiency following eye injuries has been modernized. Many of the illustrations have been replaced with more up-to-date photographs and drawings.

The original fine qualities which made this book a favorite —clear writing, conciseness, accuracy—are retained. It is felt that this manual will continue to be of great service to the medical field.

▶ **PRACTICAL USE OF THE OFFICE LABORATORY AND X-RAY Including the Electrocardiograph. By Paul Williamson, M.D. Cloth. Pp. 323, with illustrations. Price $10.75. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1957.**

Many physicians are unaware of the potential usefulness of an office laboratory. Much information, valuable in quick, accurate diagnoses, is relatively easy to obtain by simple laboratory procedures.

Dr. Williamson's coverage is not intended to emphasize the most advanced technics, nor does he ever imply that his opinions are infallible; he presents the methods and interpretations of laboratory procedures that have been useful both in his own practice and in that of other doctors.

Blood tests, urinalysis, and examination of sputum and vaginal discharges—all simple but extremely helpful laboratory procedures—are a few of these explained, as well as the office use of x-ray and the practicability of the electrocardiograph. An especially interesting chapter is that which describes the equipment and personnel necessary for a worth-while office laboratory.

The book is exceptionally well written and illustrated. It has much to offer a physician who is interested in improving his office practice.

▶ **THE MEDICAL INTERVIEW. A Study of Clinically Significant Interpersonal Reactions. By Ainslie Meares, M.B.B.S., B. Agr. Sc., D.P.M. Cloth. Pp. 117. Price $3.50. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1957.**

The medical interview is distinguished from history taking and the psychiatric interview in that it refers to discussion of a patient's problem rather than physical symptoms, and is short-term rather than part of an extended therapy. The author has recorded his own technics for handling such an interview, along with his explanation of physician-patient interaction in this situation.

The ideas expressed are quite basic, and somewhat repetitiously presented. There may well be new thoughts recorded as a result of the author's experience, but the main value of the work is to call attention to the various factors involved in a patient interview, and perhaps systematize the physician's thinking on the subject.

▶ **AN INTRODUCTION TO ELECTROCARDIOGRAPHY. By L. Schamroth, M.B., B.Ch. (Rand), M.R.C.P.E., F.R.F.P.S., University of Witwatersrand and General Hospital, Johannesburg. Cloth. Pp. 60, with illustrations. Price $2.50. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1957.**

A book designed to help the beginner in understanding the complexities of electrocardiography is here presented. The author explains basic principles which underlie electrocardiography; myocardial death, injury, and ischemia; bundle branch block; ventricular hypertrophy; digitalis and potassium effect; and disorders of cardiac rhythm—all of these designed to give the student a basis for future, more specialized study. Numerous line drawings add to the lucidity of the text.

▶ **IT PAYS TO BE HEALTHY. A World-Renowned Physician Guides You to Success, Happiness, and Health in Your Work. By Robert Collier Page, M.D., F.A.C.P. Cloth. Pp. 285. Price $4.95. Prentice-Hall, 70 Fifth Ave., New York 11, 1957.**

The many patients with psychogenic disorders that come to a physician's attention may well cause him to wish for a book he can prescribe to these patients rather than spending time ferreting out and dealing with recurrent specific problems. The

author of this popular health book has endeavored to prepare an explanation of the most common of these problems, with suggestions for patient self analysis and self help. He writes from a background of industrial medical practice, and his suggestions are addressed primarily to the employed man or woman.

Many phases of ordinary daily problems are discussed—job problems, hindrances to health in everyday life, tension headaches, problem drinking, ulcers, obesity, functional disorders, and prepsychiatric states. There are also discussions designed to aid patients to understand how physicians work and what may be expected in medical care, and on various phases of retirement.

This book may well fill a need in certain situations, but it would be strongly recommended that the physician read it carefully enough that he can suggest it only to those patients who would not be offended or feel patronized by the particular approach.

▶ ABDOMINAL TOTAL HYSTERECTOMY: A New Technique. The Posterior Approach. By Frank Musgrove, M.D. (Lond.) M.R.C.O.G. (England), Consultant Gynaecologist to the North-East Metropolitan Regional Hospital Board, London; with a foreword by W. C. W. Nixon, M.D., F.R.C.S., F.R.C.O.G., Professor of Obstetrics and Gynaecology at the University of London. Cloth. Pp. 32, with illustrations. Price $2.25. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1957.

Modifications of the standard operation for abdominal total hysterectomy are described. Illustrations for the step-by-step procedure were drawn during the actual operation. The new posterior approach is based on accurate understanding of structure and function of the pelvis, and the modifications are stated to maintain anatomic normality as well as to add to safety of the operation. The main advantages of the new procedure are conservation of support of the vaginal vault, and ability to repair moderate degrees of rectocele and cystocele during performance of hysterectomy. Early exposure of bladder and ureters and their constant visualization throughout the operation make less fearful the possibility of their injury.

The monograph closes with a brief report of the author's results in 1,000 operations by his new technic. Aside from seven instances of vault granulations, there were no negative sequelae, such as pelvic peritonitis, fistulae, prolapses, or deaths.

▶ OPERATIVE OBSTETRICS. By R. Gordon Douglas, Professor of Obstetrics and Gynecology, Cornell University Medical College; Obstetrician and Gynecologist-in-Chief, The New York Hospital; Director of the New York Lying-In Hospital; and William B. Stromme, Attending Obstetrician and Gynecologist, Northwestern Hospital and Fairview Hospital, Minneapolis; Formerly Instructor in Obstetrics and Gynecology, Cornell University Medical College; Assistant Attending Obstetrician and Gynecologist, The New York Hospital. Cloth. Pp. 735, with illustrations. Price $20.00. Appleton-Century-Crofts, 35 W. 32nd St., New York 1, 1957.

This is the first book devoted exclusively to operative obstetrics that has been published in America since 1870.

The authors do not believe that refinements and pitfalls of operative obstetrics can be adequately described and detailed in either a text or an atlas. Therefore, the book is neither, but its numerous step-by-step illustrations are so excellent that it comes close to fulfilling the purpose of both. The authors —one in hospital practice, the other practicing privately— consider that there is no double standard for the two types of practice. What is best for the patient is the same under both conditions.

There is only brief discussion of obstetric complications, since these are better covered by general texts. Unrecommended technics and outmoded operations are omitted. On the other hand, both text and illustrations present full explanation of operative obstetric procedures, and separate chapters are devoted to the important components of anatomy, anesthesia, resuscitation of the newborn, preoperative and postoperative care, and various related surgical conditions that occur in pregnancy and the puerperium.

Each chapter carries its own bibliography, the references current except for those of historic interest.

The outstanding clarity of both text and illustrations should make the book useful to students, residents, general practitioners, and specialists in the field of obstetrics and gynecology.

▶ SCIENCE LOOKS AT SMOKING—A New Inquiry into the Effects of Smoking on Your Health. By Eric Northrup. With introduction by Dr. Harry S. N. Greene, Chairman, Department of Pathology, Yale University. Cloth. Pp. 190. Price $3.00. Coward-McCann, Inc., 210 Madison Avenue, New York 16, 1957.

A gifted medical journalist with 15 years' experience in writing for the lay reader has presented an unbiased investigation of the possible connection between smoking and cancer of the lung. Many of the great names in medicine appear as the author thoroughly reviews the extensive pro and con professional literature and makes an excellent appraisal of both laboratory studies and popular reports that have been thrown out prematurely to a frightened public.

As befits the present state of uncertainty on the subject, the author avoids the dilemma by refusing to be stampeded into either statistical camp. He holds firmly to the solid clinical concept of individual predisposition, allergic sensitivity, and state of health, which admits of no generally applicable conclusions. He is to be congratulated on both his level-headedness and his lucid writing.

Physicians can safely recommend the book to either the cancerphobic patient or the one who needs a final nudge to help him stop running what may be an unwarranted risk.

▶ GYNECOLOGIC SURGERY AND UROLOGY. By Thomas L. Ball, M.D., Assistant Professor of Clinical Obstetrics and Gynecology, Cornell University Medical College; Associate Attending Obstetrician and Gynecologist, The New York Hospital, New York; With Foreword by Gordon Douglas, M.D., Professor of Obstetrics and Gynecology, Cornell University Medical College; Obstetrician and Gynecologist-in-Chief, The New York Hospital, New York. Cloth. Pp. 547, with illustrations. Price $20.00. The C. V. Mosby Company, 3207 Washington Blvd., St. Louis 3, 1957.

In his preface the author recommends to gynecologists the regional surgery concept which would extend the scope of their specialty to include proctologic and urologic procedures for complications that may arise during pelvic operations. He points out the advantages of having disorders of any of these areas under the management of one surgeon.

The book is both a ready reference and an atlas of surgical operations on the female pelvis and lower urinary and intestinal tracts. Concise step-by-step text is clearly illustrated with pages of plates assigned to each surgical procedure.

Chapters are arranged to emphasize the regional concept. A separate section on pediatric gynecologic surgery covers special problems of infants and children.

Multiple approach to management of the patient with cancer includes psychiatry, surgery, and use of radiation, isotopes, and chemotherapeutic agents.

New concepts and technics introduced have been accepted at the New York Hospital-Cornell Medical Center as well as proved elsewhere.

▶ FUNDAMENTALS OF HUMAN PHYSIOLOGY. For Students in the Medical Sciences. By W. B. Youmans, Ph.D., M.D., Professor of Physiology, University of Wisconsin. Cloth. Pp. 567, with illustrations. Price $8.50. Year Book Publishers, 200 E. Illinois St., Chicago, 1957.

Only a thorough understanding of the basic physiologic principles will enable a student to comprehend more advanced work. Therefore, a textbook must be outstanding in the simplicity and accuracy of its technical explanations.

Dr. Youmans has produced a book which not only possesses these qualities, but has other features which also help to make it an exceptionally fine educational tool. Illustrations—line drawings, photographs, and charts—are used frequently to demonstrate the principles discussed, and various type faces and sizes are used to indicate an outline for each chapter, a definite study aid. The table of contents and index are excellent.

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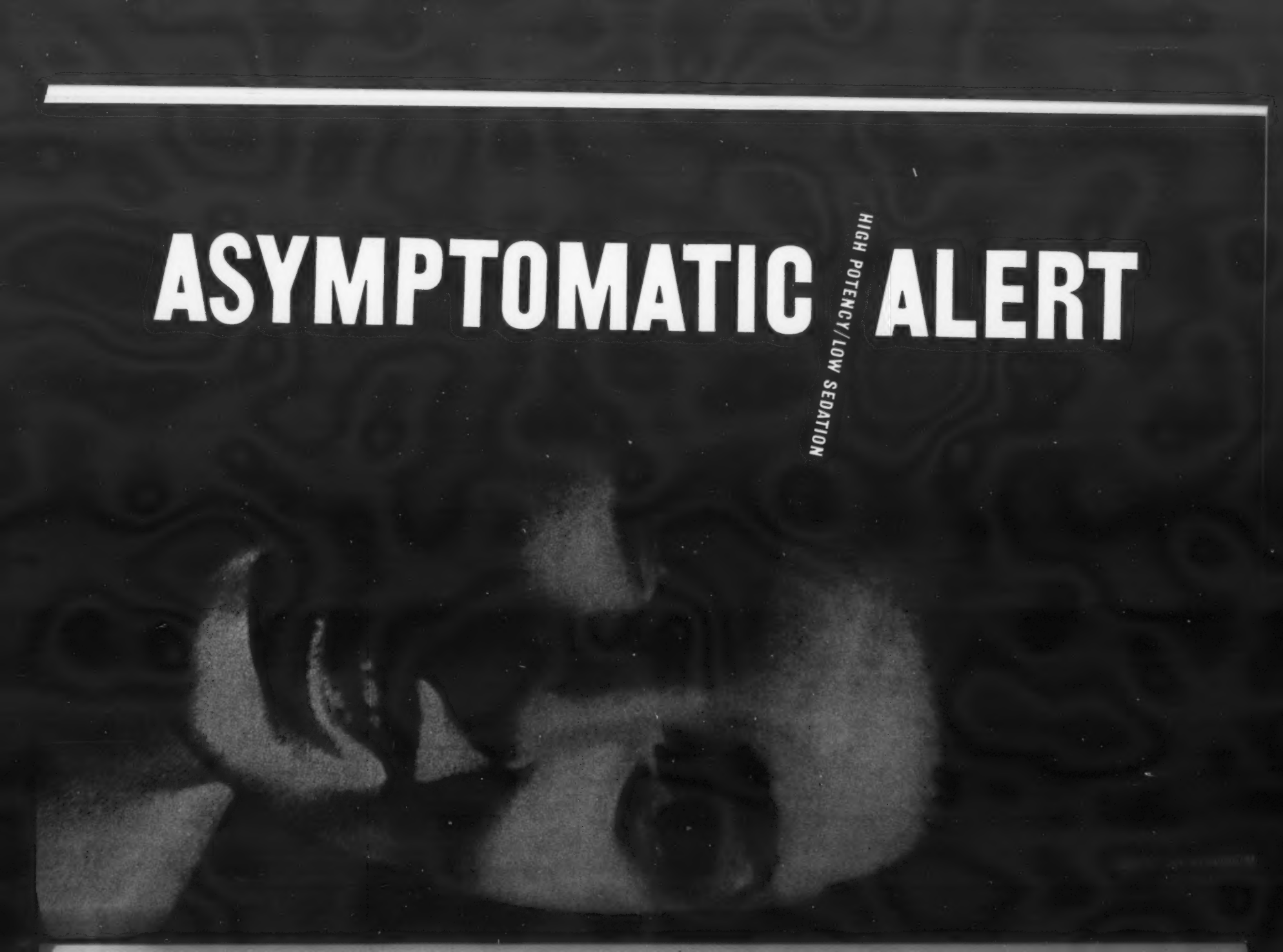

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*New and Unused Therapeutics Committee, Am. Coll. Allergists: Interim Report at Thirteenth Annual Congress, Mar. 20-22, 1957, Chicago, Ill., Ann. Allergy, to be published.

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**Am. J. Digest. Dis. 22:5, 1955

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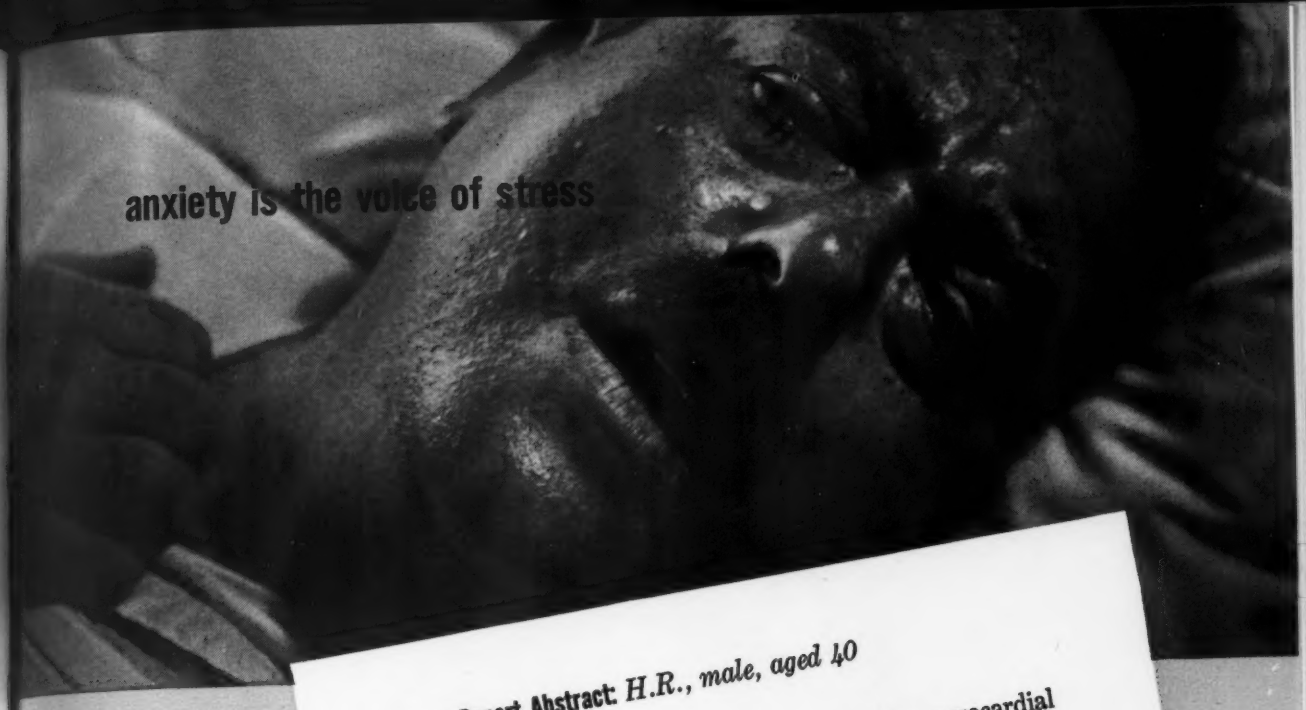

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1. Waldman, S., and Pelner, L.: Am. Pract. & Digest Treat. 8:1075 (July) 1957.

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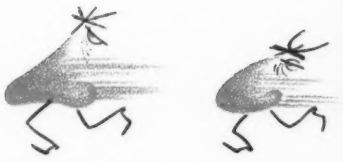

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*Morrison, L. F: Arch. Otolaryng. 59:48-53 (Jan.) 1954.

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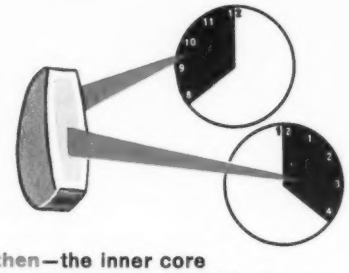

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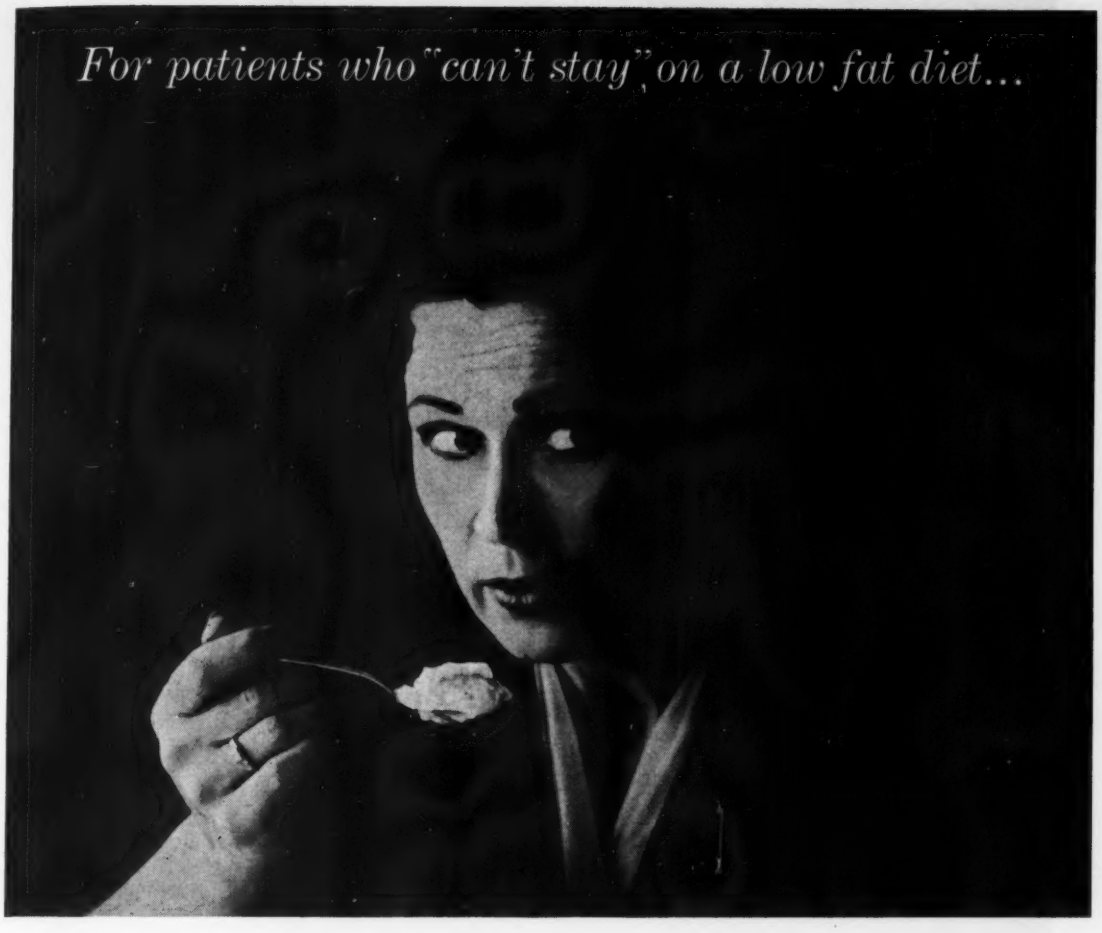

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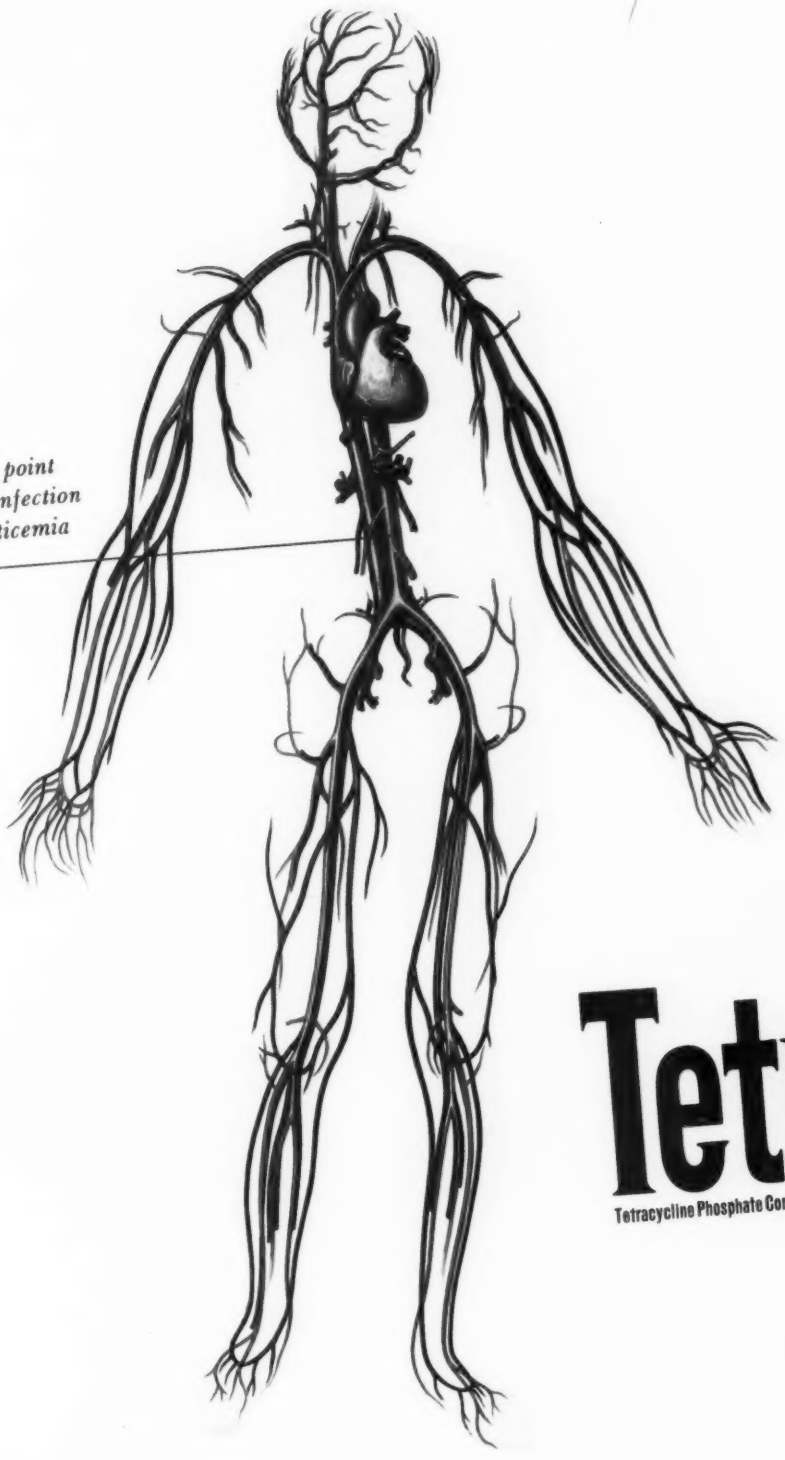

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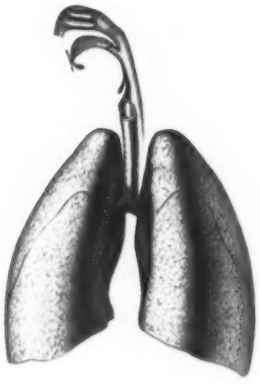

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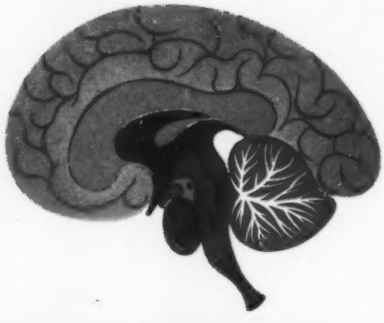

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Ulcerative Colitis

by HARRY E. BACON, M.D., Sc.D., LL.D., F.A.C.S., F.A.P.S. With Contributions by Paul T. Carroll, B.S., M.D. and a Chapter on Anesthesia by LeRoy W. Krumperman, M.D. Foreword by Alton Ochsner, B.A., M.D., Sc.D.

This new book presents an important contribution to the rational understanding of the problems and theories surrounding chronic ulcerative colitis. Drawing on his years of experience and treatment of over 400 cases of the disease, Dr. Bacon presents the complete clinical picture, the methods of diagnosis, differential diagnostic problems, anesthetic management, and preoperative and postoperative care. He carefully considers the complications and makes sound recommendations for their prevention and correction.

In the Foreword, Dr. Alton Ochsner states, "Dr. Bacon's contribution . . . is the most complete consideration of the subject that has ever been prepared . . . There is no other place where so much factual information and critical evaluation of chronic ulcerative colitis can be obtained so readily and easily . . . Physicians who might come in contact with the disease cannot afford to be without the book."

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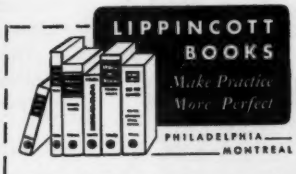

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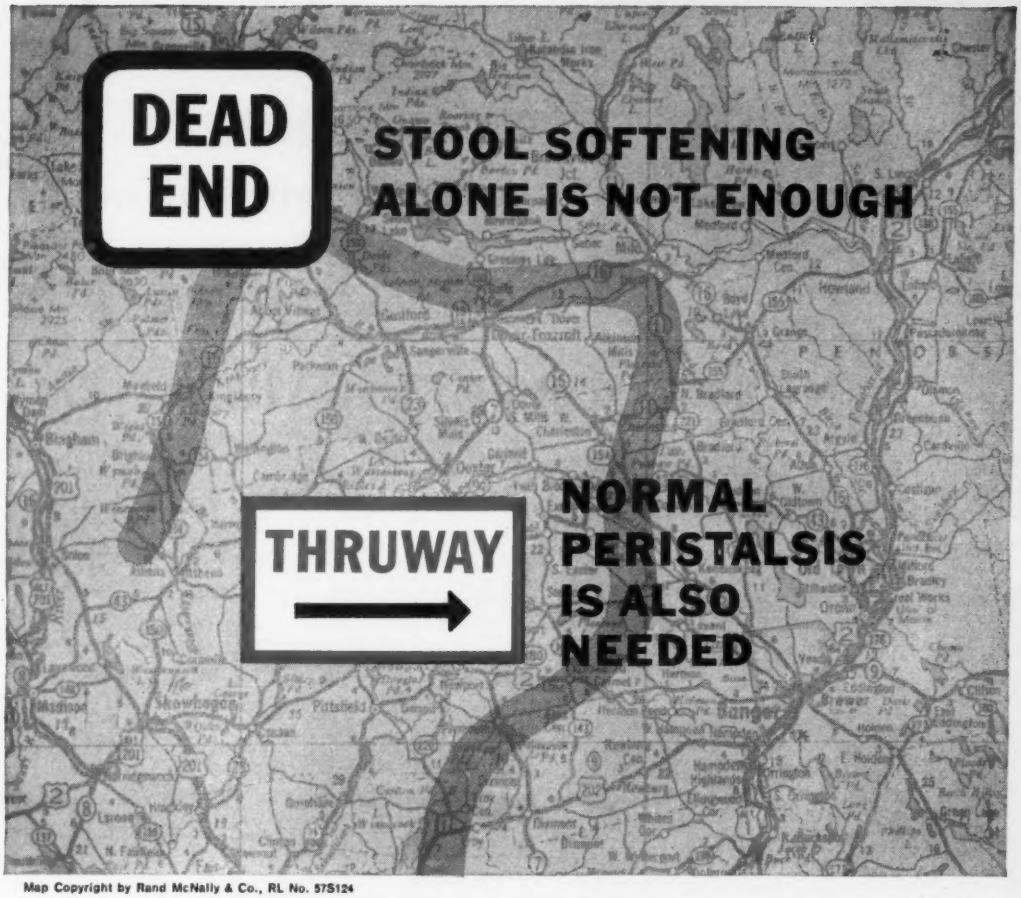

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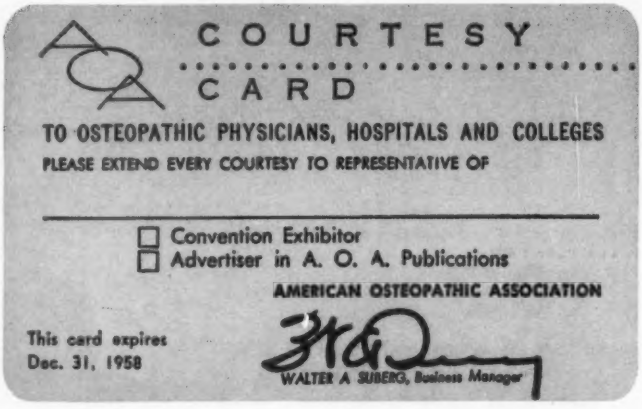

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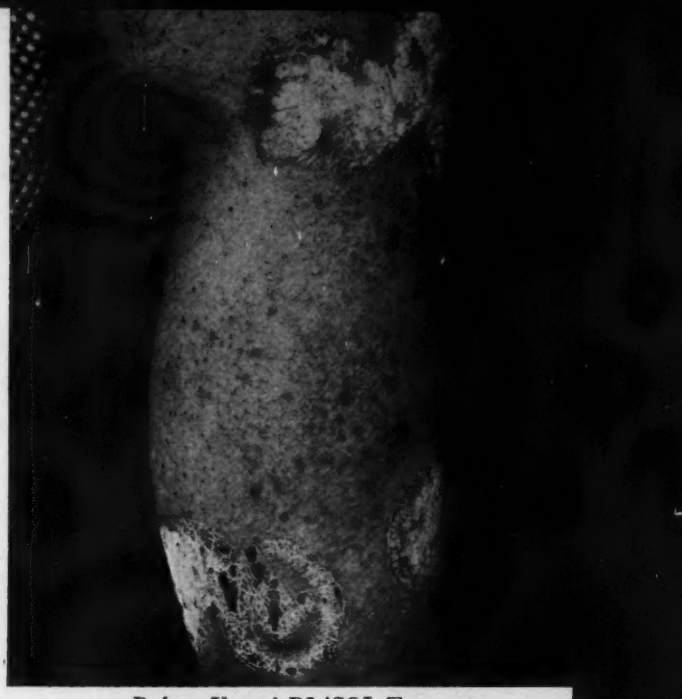

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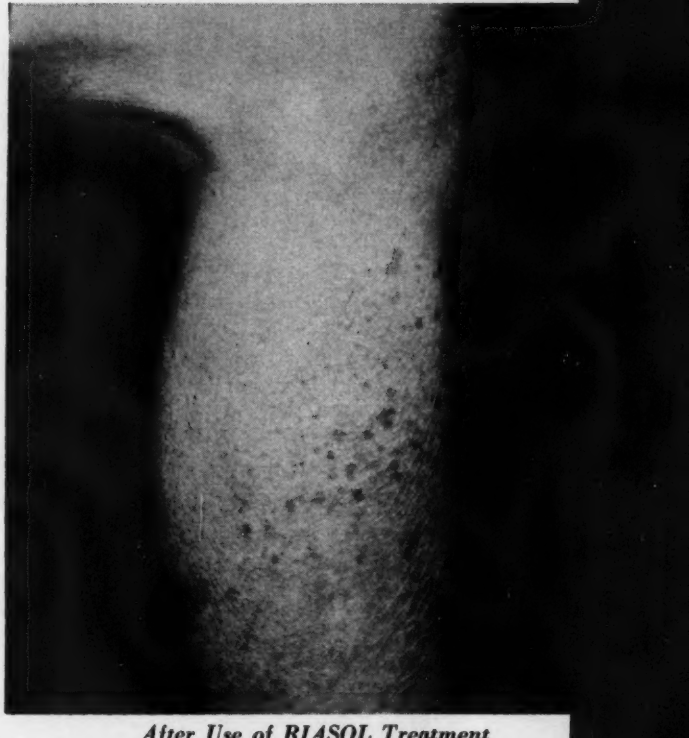

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*Cornell, A.: Gastroenterology *31*:505, 1956.

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*Marks, M. M.: Clin. Med. *4*:151, 1957.

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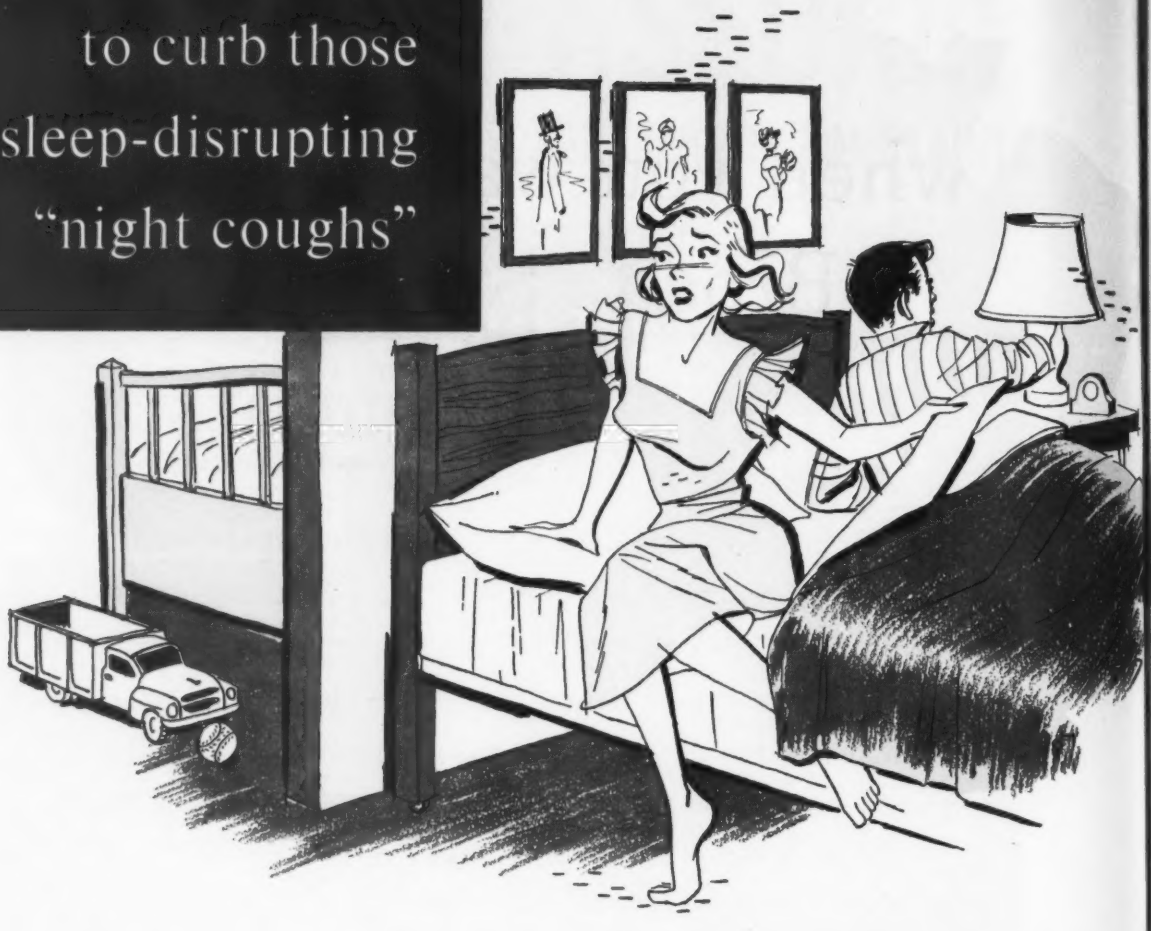

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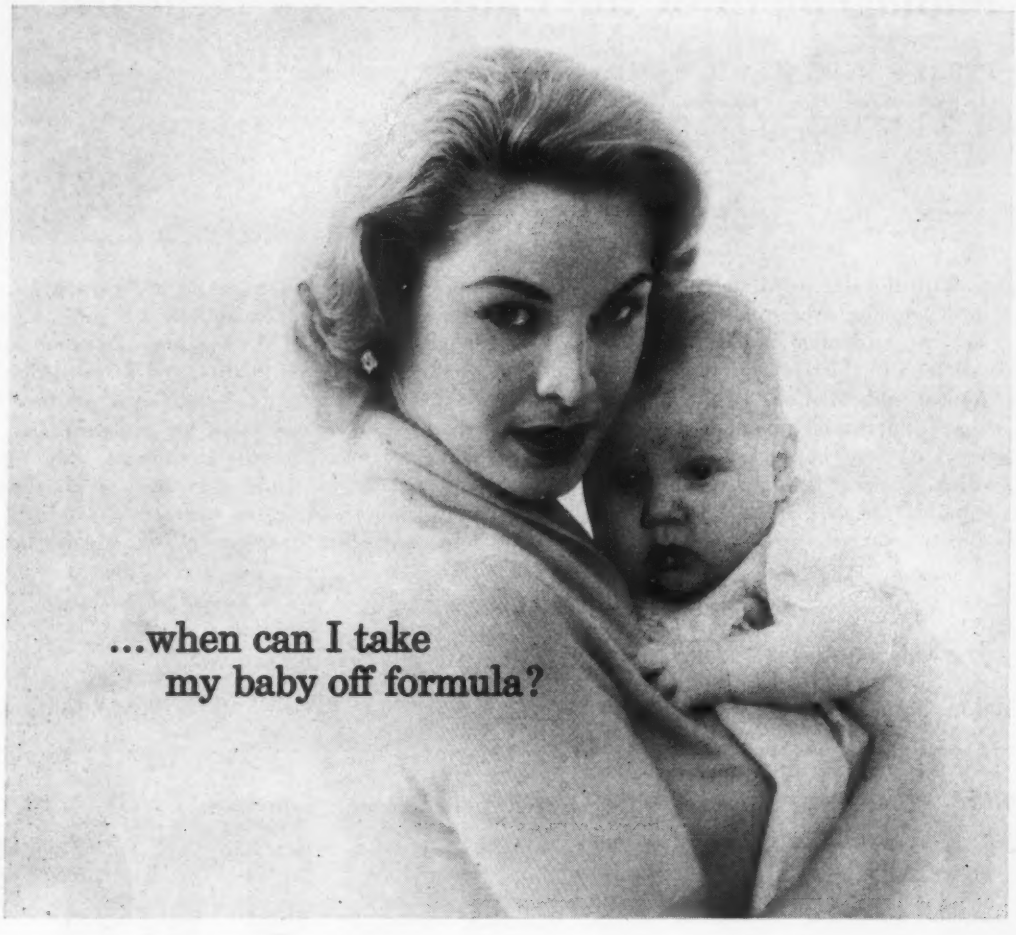

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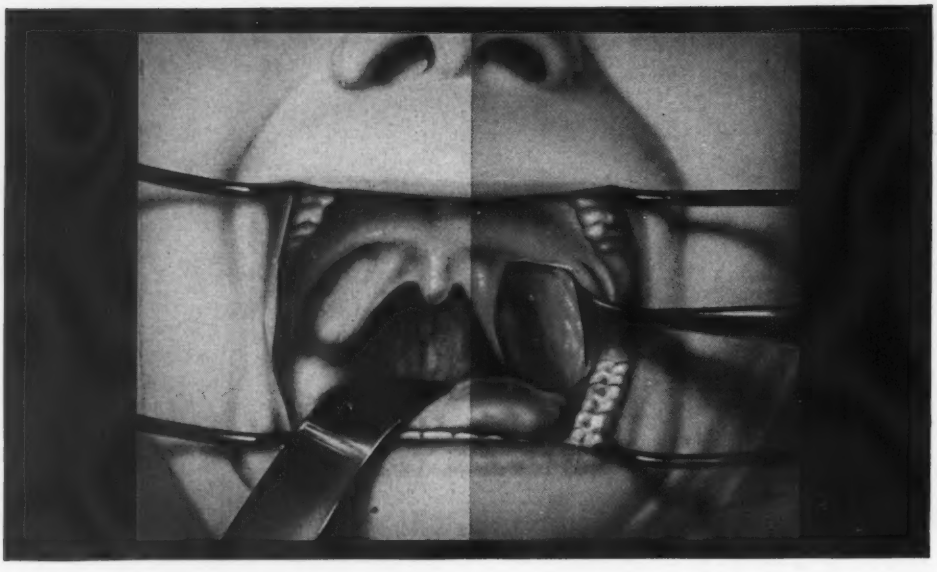

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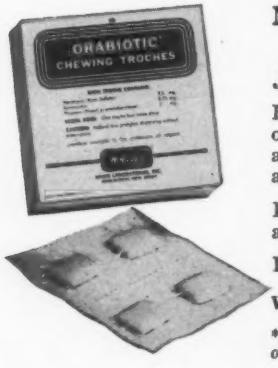

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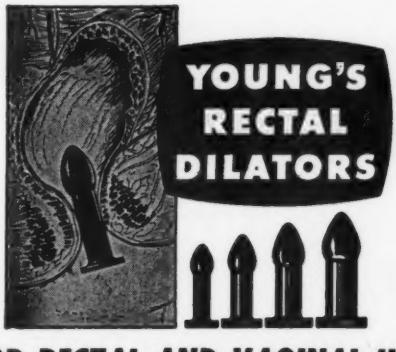

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**Joseph, Morris: Effective Analgesia Without Sedation or Narcosis, Clinical Medicine, August 1957*

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1. Rogers, G. C., and Fleming, J. M.: Am. J. Obst. & Gynec. *68*:563 (Aug.) 1954. 2. Karnaky, K. J.: Urol. & Cutan. Rev. *48*:812 (Nov.) 1938.

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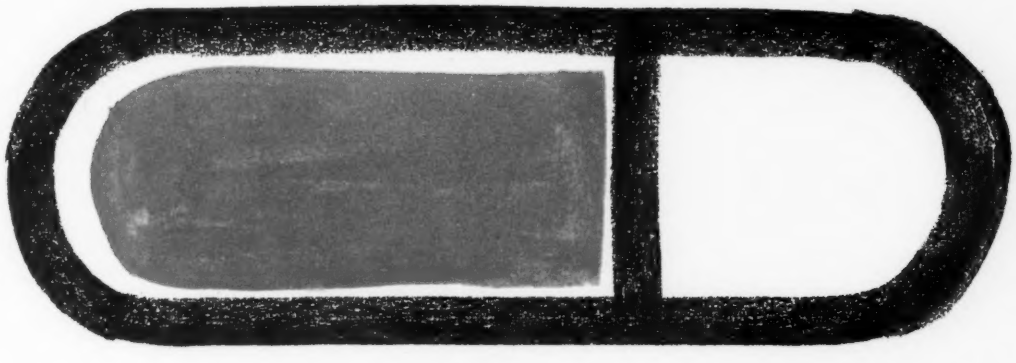

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(1) Barnes, R. H.: A Program of Therapeutic Supports in Obesity, Scientific Exhibit, 106th Ann. Meet., A.M.A., New York, N. Y., June 3-7, 1957. (2) Gelvin, E. P.; McGavack, T. H., and Kenigsberg, S.: Am. J. Digest. Dis. *1*:155, 1956. (3) Natenshon, A. L.: Am. Pract. & Digest Treat. *7*:1456, 1956. (4) Holt, J. O. S., Jr.: Dallas M. J. *42*:497, 1956. (5) Ressler, C.: J.A.M.A. *165*:135 (Sept. 14) 1957.

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Conventions and meetings

Announcements

American Osteopathic Association, Sixty-Second Annual Convention, Sheraton-Park and Shoreham Hotels, Washington, D.C., July 14-18. Program Chairman, Richard O. Brennan, 1115 W. Alabama St., Houston 6, Tex.

American College of Osteopathic Internists, annual meeting, Waldorf-Astoria Hotel, New York City, October 2-4. Program Chairman, H. Earle Beasley, 189 Bay State Rd., Boston 15, Mass. Secretary, Glennard E. Lahrson, 460 Staten Ave., Oakland 10, Calif. Eastern Study Conference, Hotel Warwick, Philadelphia, March 7-9. Western Division, annual meeting, Ambassador Hotel, Los Angeles, February 22-23. Program Chairman, S. J. Aquila, 5622 Van Nuys Blvd., Van Nuys, Calif.

American College of Osteopathic Surgeons, annual meeting, Statler Hotel, Boston, October 26-30. Executive Secretary, Mrs. E. F. Martin, Box 474, Coral Gables 34, Fla.

American Osteopathic Academy of Orthopedics, annual meeting, Statler Hotel, Boston, October 26-30. Secretary, J. Paul Leonard, 2673 W. Grand Blvd., Detroit 8, Mich.

American Osteopathic College of Anesthesiologists, annual meeting, Statler Hotel, Boston, October 26-30. Secretary, Crawford M. Esterline, Box 155, Kirksville, Mo.

American Osteopathic College of Proctology, annual meeting, Beach Club Hotel, Ft. Lauderdale, Fla., April 16-18. Program Chairman, Ralph W. Deger, 1121 Xenia Ave., Dayton 10, Ohio. Secretary, Eugene W. Egle, Lackland Clinic, 2335 Brown Rd., St. Louis 14.

American Osteopathic College of Radiology, annual meeting, Statler Hotel, Boston, October 26-30. Secretary, F. A. Turfler, Jr., South Bend Osteopathic Hospital, 2515 E. Jefferson Blvd., South Bend 15, Ind.

American Osteopathic Hospital Association, annual meeting, Statler Hotel, Boston, October 26-30. Executive Secretary, Mr. R. P. Chapman, 4000 Brady St., Davenport, Iowa.

Arizona, annual meeting, El Dorado Hotel, Tucson, May 4-6. Program Chairman, James B. Carson, 2813 S. Sixth Ave., Tucson. Executive Secretary, Mrs. Laura McRae, 4122 N. 19th Dr., Phoenix.

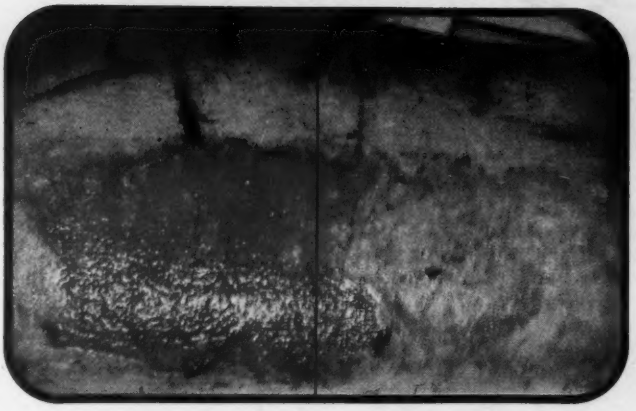
California, annual meeting, Senator Hotel, Sacramento, May 14-18. Program Chairman, Richard E. Eby, 1247 N. Park Ave., Pomona. Executive Secretary, Mr. Thomas C. Schumacher, 1298 Wilshire Blvd., Los Angeles 17.

Colorado, annual meeting, Denver, May 3. Program Chairman, A. Hollis Wolf, 304 Carlton Bldg., Colorado Springs. Secretary, C. Robert Starks, 1459 Ogden St., Denver 18.

Eastern Osteopathic Association, annual meeting, Hotel Statler, New York City, March 29-30. Program Chairman, Chester D. Losee, 212 Prospect St., Westfield, N.J. Secretary, Frank B. Tompkins, 309 Meyerhoff Bldg., Baltimore 1.

Eastern States Osteopathic Society of Proctology, annual meeting, Hotel DuPont, Wilmington, Del., November 1-2. Program Chairman, Terrell E. Cobb, 1379 Narragansett Blvd., Cranston 5, R.I. Secretary, LeRoy W. Lovelidge, Jr., 201 E. Orange St., Lancaster, Pa.

Georgia, annual meeting, Dinkler-Plaza Hotel, Atlanta, May 12-14. Program



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Jeffords, J. V., and Hagerty, R. F.: Ann. Surg. *145*:169, 1957

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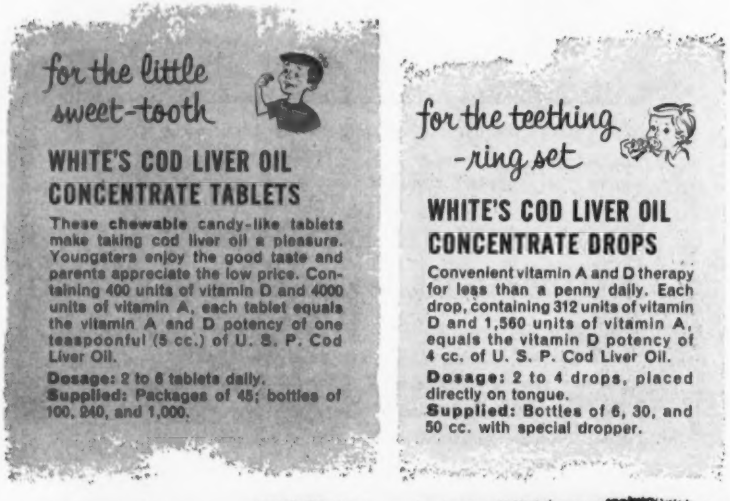
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Chairman, Charles B. Wright, Tucker Hospital, Tucker. Executive Secretary, Mr. James C. Chappell, 3900 Bobolink Dr., Decatur.

Illinois, annual meeting, Palmer House, Chicago, April 24-26. Executive Secretary, Mr. Douglas O. Durkin, Room 521, 53 W. Jackson Blvd., Chicago 4.

Indiana, annual meeting, French Lick-Sheraton Hotel, French Lick, May 18-20. Program Chairman, Harold T. Sparks, 2317 Washington Ave., Evansville 14. Secretary, Arabelle Baker Wolf, 4840 N. Michigan Rd., Indianapolis 8.

Iowa, annual meeting, Hotel Savery, Des Moines, May 25-27. Program Chairman, George W. Sutton, 511 E. Washington, Mount Pleasant. Secretary, Mr. Herman W. Walter, 200 Walnut Bldg., Des Moines 9.

Louisiana, annual meeting, Lake Charles, October 23-25. Secretary, V. L. Wharton, 406-07 Weber Bldg., Lake Charles.

Maine, annual meeting, Samoset Hotel, Rockland, June 26-28. Program Chairman, Robert J. Meehan, 223 Main St., Rockland. Executive Secretary, Mr. George R. Petty, Monmouth.

Michigan, annual meeting, Civic Auditorium, Grand Rapids, October 6-8. Program Chairman, Emmett Binkert, Carson City Hospital, Carson City. Executive Secretary, Mr. Floyd E. Brooker, 81 Glendale, Highland Park 3.

Minnesota, annual meeting, Hotel Nicollet, Minneapolis, May 1-3. Program Chairman, Robert M. Plasch, 816 E. 38th St., Minneapolis 7. Secretary, E. R. Komarek, 301 Granite Exchange Bldg., St. Cloud.

New Jersey, annual meeting, Traymore Hotel, Atlantic City, March 8-9. Program Chairman, John D. Dennis, Jr., 46 Glenwood Ave., East Orange. Executive Secretary, Mr. I. J. Tecker, 1007 Pinebrook Rd., Haddonfield.

New Mexico, annual meeting, Hilton Hotel, Albuquerque, April 13-16. Program Chairman, E. C. Bartlett, Jr., 118 Richmond Ave., N.E., Albuquerque. Secretary, Lory Baker, 400 N. Church St., Las Cruces.

Northwest Osteopathic Convention, Olympic Hotel, Seattle, June 12-14. Program Chairman, Wilbert B. Saunders, 4730 University Way, Seattle 5.

Ohio, annual meeting, Neil House, Columbus, May 4-7. Program Chairman, A. R. Fuller, 201 S. Park Ave., Fremont. Executive Secretary, Mr. William S. Konold, 53 W. Third Ave., Columbus 1.

Ontario, annual meeting, Prince Edward Hotel, Windsor, May 1-3. Program Chairman, Norman W. Routledge, 15, Ursuline Ave., Chatham. Secretary, A. V. DeJardine, 205 Yonge St., Toronto 1.

Oregon: See Northwest Osteopathic Convention.

Rhode Island, annual meeting, March 5-6. Program Chairman, J. Weston Abar, 981 Narragansett Blvd., Providence 5.

South Dakota, annual meeting, Drake Hotel, Watertown, June 1-2. Program Chairman, Lawrence L. Massa, 981 E. Main St., Sturgis. Secretary, Earl W. Hewlett, 417 W. 27th St., Sioux Falls.

Tennessee, annual meeting, Maxwell House, Nashville, April 27-30. Program Chairman, William H. Graves, Central Bldg., Bristol. Secretary, J. M. Moore, Jr., 200 High St., Trenton.

Vermont, annual meeting, Green Mountain Inn, Stowe, September 23-25. Clerk-treasurer, Marian N. Rice, 8 Court St., Windsor.

Virginia, annual meeting, Williamsburg Lodge, Williamsburg, May 22-24. Program Chairman, Felix D. Swope, 126 N. Columbus St., Alexandria. Secretary, John A. Cifala, 2778 N. Washington Blvd., Arlington.

Washington: See Northwest Osteopathic Convention.

West Virginia, annual meeting, Daniel Boone Hotel, Charleston, May 18-20. Program Chairman, Earl K. Lyons, Professional Bldg., Kerens Ave., El-

kins. Secretary, Guy E. Morris, 542 Empire Bank Bldg., Clarksburg.

Western States Osteopathic Society of Proctology, annual meeting, Texas Hotel, Ft. Worth, Texas, October 6-8. Program Chairman, Clarence R. Woolsey, 118 Third St., Corpus Christi, Texas. Secretary, Earle F. Waters, 925 E. South Temple St., Salt Lake City 2, Utah.

Wisconsin, annual meeting, Wisconsin Hotel, Milwaukee, April 28-30. Program Chairman, Donald R. Bartingale, 403 S. Farwell St., Eau Claire. Secretary, Edwin J. Elton, 1518 N. 70th St., Wauwatosa 13.

State and national boards

ARIZONA

Those interested in professional examinations should contact Russell Peterson, D.O., secretary, Osteopathic Board of Registration and Examination in Medicine and Surgery, 2747 East McDowell Rd., Phoenix.

Basic science examinations March 18 at the University of Arizona, Tucson. Applications must be filed 2 weeks prior to examinations. Address Mr. Herman E. Bateman, secretary, Basic Science Board, University of Arizona, Tucson.

COLORADO

Basic science examinations May 7-8 at second floor lecture room, Y.M.C.A. Building, E. 16th Ave. and Lincoln St., Denver. Applications must be filed by April 23. Address Esther B. Starks, D.O., secretary, Basic Science Board, 1459 Ogden St., Denver 18.

CONNECTICUT

Examinations March 11-12. Applications must be filed by February 25. Address Frank Poglitsch, D.O., secretary, Osteopathic Examining Board, 300 Main St., New Britain.

DISTRICT OF COLUMBIA

Examinations May 12-13. Address Daniel Leo Finucane, M.D., Secretary, Commission on Licensure, 1740 Massachusetts Ave., N.W., Washington 6, D.C.

Basic science examinations in April at 1740 Massachusetts Ave., N.W., Washington 6, D.C. Address Dr. Finucane.

ILLINOIS

Examinations in April in Chicago. Address Mr. Frederic B. Selcke, Superintendent of Registration, Department of Registration and Education, State House, Springfield.

IOWA

Basic science examinations April 8 at the Capitol Building, Des Moines. Address Elmer W. Hertel, Ph.D., secretary, Board of Basic Science Examiners, Wartburg College, Waverly.

MICHIGAN

Basic science examinations in May at Detroit and Ann Arbor. Address Mrs. Anne Baker, secretary, Board of Examiners in the Basic Sciences, 116 Mason Bldg., Lansing.

MINNESOTA

Basic science examinations April 1-2 at University of Minnesota, Minneapolis. Address Raymond N. Bieter, M.D., secretary-treasurer, Board of Examiners in the Basic Sciences, 105 Millard Hall, University of Minnesota, Minneapolis 14.

MONTANA

Examinations March 4. Address Asa Willard, D.O., secretary, Board of Osteopathic Examiners, Wilma Bldg., Missoula.

NEBRASKA

Basic science examinations May 6-7. Address Mr. Husted K. Watson, Director, Bureau of Examining Boards, Department of Health, State Capitol Bldg., Lincoln 9.

NEVADA

Basic science examinations April 8. Address Donald G. Cooney, Ph.D., secretary, Board of Examiners in the Basic Sciences, Box 9005, University Station, Reno.

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[1]Brusch, C.A., et al.: Md. State Med. J.; 5:36, 1956.

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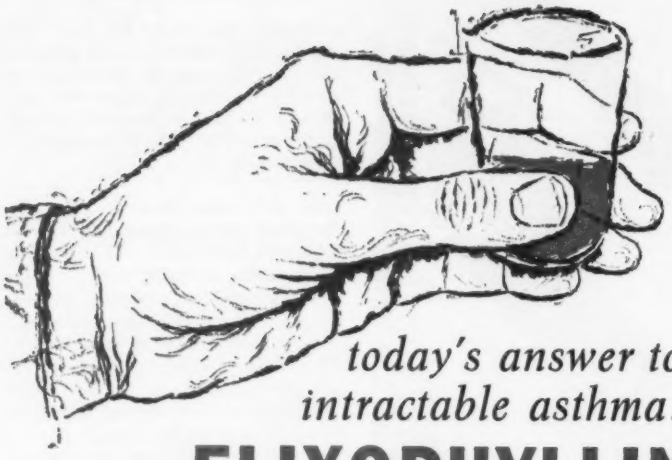

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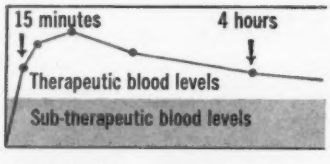
This predictability of blood levels permits attainment of *therapeutic blood levels night and day,* providing relief of wheezing, dyspnea, cough, and protection against acute attacks.*

DOSAGE: *First two days:*
45 cc. *(three tbsp.)* on arising;
45 cc. *(three tbsp.)* on retiring;
45 cc. *(three tbsp.)* once midway between above doses *(about 3 P.M.)*



After two days of therapy the size of doses should be slightly decreased.
Each tablespoonful contains: theophylline 80 mg., alcohol 3 cc.
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NEW HAMPSHIRE

Examinations March 12-14 at Concord. Address John S. Wheeler, M.D., secretary, Board of Registration in Medicine, State House, Concord.

NEW MEXICO

Basic science examinations April 20. Address Mrs. Marguerite Cantrell, secretary, Board of Examiners in the Basic Sciences, P.O. Box 1522, Santa Fe.

RHODE ISLAND

Examinations April 3-4 at Providence. Address Mr. Thomas B. Casey, Administrator of Professional Regulation, 366 State Office Bldg., Providence.

Basic science examinations in May at the State Office, Providence. Applications must be filed 21 days prior to examinations. Address Mr. Casey.

TENNESSEE

Examinations in February at Nashville. Address Marion Edmund Coy, D.O., secretary, Board of Examination and Registration for Osteopathic Physicians, 1226 Highland, Jackson.

Basic science examinations given every 3 months. Address O. W. Hyman, M.D., secretary, Board of Basic Science Examiners, 874 Union Ave., Memphis 3.

WISCONSIN

Basic science examinations March 29 at the University of Wisconsin Chemistry Building, Room 100, Madison. Applications must be filed by March 21. Address Mr. W. H. Barber, secretary, Board of Examiners in the Basic Sciences, Ripon College, Ripon.

ALBERTA

Examinations in April. Address Mr. G. B. Taylor, Acting Registrar, Alberta Medical Board, Office of the Registrar, University of Alberta, Edmonton, Canada.

Reregistration of osteopathic licenses

Prior to March 1—Colorado, $2 if legal resident of state, $10 if not resident. Address Mrs. Buelah H. Hudgens, executive secretary, Board of Medical Examiners, 715 Republic Bldg., Denver 2.

April 1—Montana, $2 for those in active practice, $1 for those inactive. Address Asa Willard, D.O., secretary, Board of Osteopathic Examiners, Wilma Bldg., Missoula.

April 1—Wyoming, $2.50. Address Franklin D. Yoder, M.D., secretary, Board of Medical Examiners, New State Office Bldg., Cheyenne.

May 1—Iowa, $1. Address Mr. Herman W. Walter, assistant secretary, Board of Osteopathic Examiners, 200 Walnut Bldg., Des Moines 9.

May 1—Washington, $2. Address Mr. Edward C. Dohm, secretary, Professional Division, Department of Licenses, Olympia.

Examination by National Board

The National Board of Examiners for Osteopathic Physicians and Surgeons conducts Parts I and II of its examination on the first Thursday and Friday of each May and December at the six approved colleges. Application blanks may be obtained from the secretary or the dean of the college, and the completed application blank, together with a passport photograph and check for the parts to be taken must be in the secretary's office by the November 1 or April 1 preceding the examination.

Examinations in Part I consist of anatomy, including histology and embryology; physiology; physiological chemistry; general pathology; and bacteriology, including parasitology and immunology.

Part II consists of examinations in surgery, including applied anatomy, surgical pathology, and surgical specialties; neurology and psychiatry; public health, including hygiene, medical jurisprudence; osteopathic principles, therapeutics, including pharmacology and materia medica.

Part III is an oral and practical examination given under the supervision of a chief examiner who is a member of the Board and by a panel of associate examiners. Subjects covered in Part III are anatomy; physiology; pathology; osteopathic principles; therapeutics, and pharmacology; surgery, ophthalmology and otorhinolaryngology; obstetrics and gynecology; physical and clinical diagnosis; public health and communicable diseases.

These are oral examinations which the candidate may take after having satisfactorily completed the first 6 months of a 1 year internship in a hospital approved by the American Osteopathic Association for intern training. Part III is given annually at the Philadelphia, Kirksville, and Los Angeles colleges.

Eligibility requirements are as follows: Part I, satisfactory completion of the first 2 years in an approved school of osteopathy; Part II, satisfactory completion of Part I and of the first two quarters or trimesters of the senior year in an approved osteopathic college; Part III, satisfactory completion of Part II and at least 6 months of a 1-year internship approved by the American Osteopathic Association. The internship requirement does not apply to candidates who took Part I prior to July, 1950.

Applications must be filed with the secretary of the Board not less than 30 days prior to the examination dates. Address Paul van B. Allen, D.O., secretary, 1512 N. Delaware Street, Indianapolis 2.

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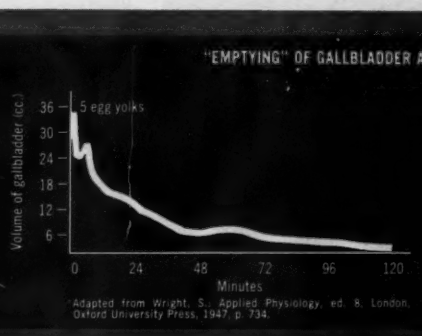

Adapted from Wright, S., Applied Physiology, ed. 8, London, Oxford University Press, 1947, p. 734.

What's wrong with the term "emptying of the gallbladder"?

The gallbladder discharges bile by fractional evacuation. It is not emptied completely at any one time even following a fatty meal.

Source—**Lichtman, S. S.: Diseases of the Liver, Gallbladder and Bile Ducts, ed. 3, Philadelphia, Lea & Febiger, 1953, vol. 2, p. 1177.**

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What affects blind children's development*

Miriam Norris, A. M.
Associate Director, Project for Study of Blind Children, Section of Medical Psychology, Department of Medicine, University of Chicago

What is the effect of the handicap of blindness on the development of the infant and young child? What real limitations does it impose? Is retrolental fibroplasia only one aspect of a generalized brain defect? How can one evaluate the capacity of the blind child and in particular differentiate between the truly mentally defective child and one whose developmental progress has been disturbed by unfavorable environmental circumstances? Are specialized techniques needed to overcome the handicap? What kinds of services should the community be prepared to offer? These are some of the questions to which, for several years, the Project for the Study of the Development of Preschool Blind Children, at the University of Chicago Clinics, has been trying to find soundly based answers through its multidisciplinary research program.

*Reprinted from *Children*, July-August, 1956.

In the brief space of this article one can do little more than highlight the material to be included in the detailed report of the project. Perhaps the most significant finding of the study is that the development of the blind child with no other major physical handicap can be expected to progress in orderly fashion so that by school age he is functioning well up to the level of his sighted peers. This development, however, takes place only to the extent that overall conditions have been favorable for him. This finding emphasizes the importance of getting skilled service to the parents at the earliest age possible if the child is not to become retarded in his development.

The project resulted initially from the broad approach of Dr. Arlington C. Krause, Professor of Ophthalmology at the University of Chicago Clinics, to the study of the problem of retrolental fibroplasia. The formal phase of the research program covers the 5-year period from August 1949 to August 1954. Actually the conclusions in the study are based on observations over a much longer time.

As early as 1942 doctors at the Clinics called in both psychologist and social worker to study with them every case of a blind child, whatever the diagnosis, and to help them in formulating appropriate plans of social treatment. The increasing number of cases of blindness from retrolental fibroplasia in prematurely born children soon created a problem of such magnitude that systematic research into the social and psychological factors in the child's development became imperative. Since many of these children were

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*REFERENCE:
J.A.M.A. 163: 359, 1957 (February 2)

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retarded in functioning according to normal developmental standards, Dr. Krause believed that such research was essential first in contributing to an understanding of the nature of the disorder and secondly in providing a basis for treatment of the individual child.

In August 1949 funds from the Field Foundation and the Chicago Community Trust made it possible for a psychologist and social worker, already long familiar with the problems, to devote full time to the project. A second social worker was added in March 1951, through the support of the Tibbetts Foundation and later the Woods Charitable Fund, Inc. A research grant from the Public Health Service, U. S. Department of Health, Education, and Welfare, has also contributed to the project's support.

PRINCIPLES AND OBJECTIVES

The extensive preliminary experience of the project staff with children with retrolental fibroplasia provided the basis for formulating the general principles underlying the study. Most important were the following:

1. A longitudinal study with repeated observations of the child at regular intervals would yield the most productive results.
2. Such a study should, if possible, follow the child from the time of the diagnosis of blindness until he was of regular school age.
3. The study would require a teamwork approach involving continued working relationships within the University of Chicago Clinics as well as with key community agencies.
4. Service to parents in accordance with the objectives and methods of the research plan would be a necessary part of the research program.
5. The primary focus would be the overall functioning of the child in relation to his total environment. This would require observations in the home by both psychologist and social worker.
6. The study would be primarily descriptive in nature, with gathering and analyzing observed data as its first step.
7. The study should yield data indicating areas needing further investigation and suggest methods for carrying this out.

The objectives were defined as follows:

1. The primary concern of the psychologist was to establish more accurate developmental norms for blind children, which would provide a sound basis for clinical evaluation of an individual child and for social and educational recommendations for him.
2. The primary concern of the social worker was to gain a better understanding of the total development of the blind child with particular reference to the factors which promote or retard his optimal development.

Obviously there were overlapping areas where both psychologist and social worker could make significant observations.

While the project staff recognized the advantage of methods such as the use of a matched control group and a representative sampling of blind children, there seemed to be no way of achieving these. The staff, therefore, sought other safeguards. Since restricting the study to children known medically to the University Clinics might have introduced unidentifiable biases, a cooperative agreement was reached with the counseling service for blind children in the Illinois Department of Public Welfare by which all known blind children in the Chicago area meeting the established criteria were referred to the project between specified dates.

While it is not certain that this had the effect of bringing all children meeting the criteria to the attention of the project, it is believed that the constant efforts of the State Department of Public Welfare to make its counseling service widely known to hospitals, ophthalmologists, pediatricians, and others, combined with the publicity resulting from Parents' Institutes, were sufficient to produce a situation closely analogous to compulsory registration. Since referral to the project was made only on the consent of the child's physician, eye reports and other relevant medical data about the child could be obtained from the doctor.

Experience had demonstrated the importance of seeing the child in the early months of his development, preferably as soon as the fact of blindness became established. Intensive study by the project was therefore limited to children seen at or before 15 months of age. All "educationally blind" children in the Chicago area meeting this requirement and having no other major physical handicap received systematic study and casework service—"educationally blind" being defined as those expected by the referring ophthalmologist to require braille in their education. The psychologist's observations of these children were scheduled at 3-month intervals until the child was 2 years and 6 months of age and at 6-month intervals until age 5. Thereafter

the observations were on a yearly basis. This intensive group included 66 children. The qualitative conclusions of the research project are based on the analysis by the psychologist and social worker of the combined data on these children.

A second group of children was followed systematically by the psychologist in order to provide a larger number of test observations at the various ages as well as to give some basis for comparison with the intensively studied group. It included "educationally blind" children who for one reason or another did not meet all the criteria for inclusion in the first group, for example, age first seen or residence in the Chicago area. For this second group the age requirement was raised to include children seen at or before 27 months of age. For these children the referring agency assumed continuing casework responsibility on a cooperative basis. This group included 77 children.

Finally, there was a third group composed of 152 children who did not meet the criteria for either of the above groups but for whom psychological-test observations and related social data were available. These were usually children seen on consultation, many of them at the yearly Institute for Parents held as part of the statewide service for preschool blind children carried on by the Department of Public Welfare. For most of these children only one or two psychological observations were obtained.

For research purposes home visits by the psychologist were usually more productive than office visits. This was the plan usually followed except in the third group.

As a result of this plan of study over 2,500 psychological-test observations of young blind children were available for analysis for the purposes of attaining the first objective: that of gaining a better picture of the developmental patterns of blind children.

The social worker's concern was primarily with understanding the basic factors influencing the child's total development (the second objective) and her work was limited in general to the intensive group. Her role followed no set pattern and was dictated by the research requirements and the needs of the individual cases as they were agreed upon in staff conferences, often with the help of the psychiatric or casework consultant or both. Throughout the study she had close working relationships with the ophthalmologist and the pediatrician, both in regard to individual children and in consideration of larger aspects of the program. Of particular value to the parents was the continuing interest of the ophthalmologist in the progress of the child and the problems they were encountering, long after the diagnosis had been made and when there were no further medical recommendations.

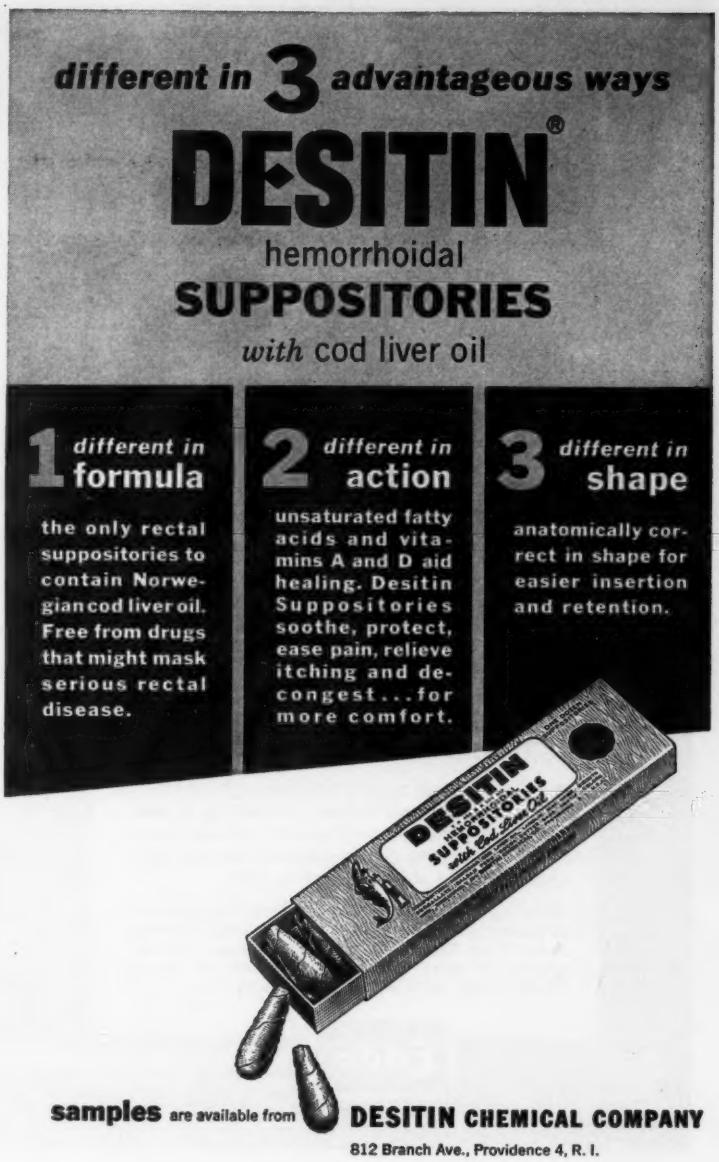
METHOD OF STUDY

For both psychologist and social workers the basic method, observation of the child in his environment, involved highly subjective aspects of professional judgment-making. Recognizing the dangers in such a plan, they constantly looked critically at both method and findings in an effort to secure disciplined and well-documented evaluations. As the study progressed detailed guides for observation and analysis of data evolved.

The fact that the observations came from two disciplines provided a certain safeguard. Moreover, the fact that the *same* psychologist and the *same* social workers were gathering the data gave consistency to the factors operating in the judgments. Staff conferences and discussions with psychiatric, social-work, and research consultants were invaluable in bringing up points particularly susceptible to bias. Repeated observations over a period of time gave opportunities to test out and verify hypotheses.

The original plan had been to follow all children in both groups in the longitudinal study until age 7 when their school progress and evaluation by the school authorities would serve as a check against the project's predictions. Unfortunately, a decision to shorten the duration of the project made the complete attainment of this objective impossible. However, the school experience of the older children served as partial confirmation.

In the intensively studied group the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changes in test scores and rating of behavior and individual development in relation to changes in the child's total situation provided a safeguard to subjective judgment. There were added checks in the facts that the final analysis of psychological data was made by a psychologist who had had no direct contact with the children and that the analysis of the social data was based on ratings made independently by the two social workers, from which all items producing significant differences of opinion had previously been eliminated.

Two general methods were used for analyzing the quantitative psychological data from the test observations of the children in the three groups: 1) an item analysis to determine the percentage of success on each item at each age level; 2) rating scales for each child at each age interval plus a summary rating of the child's functioning level as measured by the quantitative test data.

Five-point rating scales were also developed to indicate the social workers' evaluation of the "opportunities for learning" which the children in the intensive group had had and their prediction as to the level of functioning which could be expected from them (Prognostic Scale).

The Opportunities for Learning Scale consists of 16 carefully defined items with a summary item 17 expressing the overall evaluation as follows:

Extent to which the overall learning situation has been favorable to the child's total development with special reference to the degree of self-motivation, self-reliance, and active interest in the environment. Consider quality of relationships, appropriateness of expectations, opportunities for success (in relation to mother's evaluation of child's accomplishment), type and variety of learning experiences both within the family and the larger community.

The Prognostic Scale rated the child with respect to his degree of independent functioning, orientation, use of capacity, and extent of secondary handicap.

Each child in the intensive group was rated also on "degree of blindness" and "orientation."

Though only children expected by the referring ophthalmologist to require braille in their education were included in the study, there was a wide range of degree of blindness, from children who were totally blind to some who had a considerable degree of useful vision. Each child was, therefore, rated on his degree of functional vision as observed by the staff. "Orientation" was defined in terms of the child's ability to get about freely and independently and to relate himself to his environment.

The rating-scale technique made possible some useful comparisons of relationships between the child's functioning as measured by psychological-test data and the complex interrelated factors in his environment.

SUMMARY OF FINDINGS

Data gathered in the 5-year study have contributed substantially to the attainment of the project's objectives and to providing a basis for answering the questions raised at the outset.

Analysis of the quantitative psychological data and school and other experience demonstrates clearly that the development of the blind child who has no other major physical handicap can be expected to follow an orderly progression in which he will be functioning up to the age level of the sighted group by the time he reaches regular school age. Probably even more significant, however, is the evidence from the study of the intensive group, that this orderly development takes place only to the extent that the total learning situation has been favorable for the child.

The extremely wide range in the functioning level of blind children has been noted repeatedly, but comparatively little systematic study has been directed to the difficult problems of identifying factors which determine the development of the individual child and of finding ways in which his capacity can be properly assessed. Equally significant with the wide range in functioning found among different children in the project are the extreme fluctuations in test scores of individual children shown in the data provided by the longitudinal study. Almost without exception these fluctuations are found to be related to factors in the child's overall learning situation. The advantages of such records for an analysis of the factors contributing to the child's development are obvious.

But what then constitutes a learning situation which is favorable for the child's optimal development? Here our experience runs counter to many of the traditional views with which the parent

is confronted as he tries to understand confusing and frustrating behavior. At the outset let me stress that we have found that blindness in and of itself is *not* the determining factor in the child's development. Rather, failure on the part of adults to know what to expect of a blind child or how to encourage his optimal development creates the problems.

As basic characteristics of "optimal development" the staff agreed that special attention should be given to the degree of self-motivation, self-reliance, and active interest in the environment displayed by the child. All three were areas that traditionally have been expected to present particular difficulties to the blind child. All three were useful in differentiating children who were doing well from those who were making only limited use of their capacity. "Opportunities for learning" also were considered in terms of their contributing to or delaying the emergence of these qualities.

For purposes of summarizing the staff's evaluation of the nature and quality of the child's experience the detailed Opportunities for Learning rating scale was used, summarized under the following headings: 1) quality of relationships; 2) appropriateness of expectations; 3) opportunities for success (in relation to the mother's evaluation of the child's accomplishment); and 4) type and variety of learning experiences both within the family and within the larger community. These ratings were then compared with the child's rating on intelligence and social-maturity tests and with the other variables being studied.

As with all children, the basic ingredient for encouraging the development of the blind child was found to be the kind of comfortable relationship with his parents wherein parent and child both experience continuing satisfaction and enjoyment. Indeed the child's "psychological" development in the limited sense of the term is dependent upon this type of relationship. Yet in the blind child, who depends on it most, the physical handicap operates against achieving it. This happens not only, or even primarily, because of neurotic elements in the parents' attitudes but because of the realistic problems involved and the lack of sound guidance to give parents confidence in their ability to handle their child constructively.

There is real danger in failing to appreciate the realistic basis for the parents' anxiety or in assuming that problems must be due to some personality defect on their part. Moreover, there is too little recognition of the heavy demands which meeting the child's needs for optimal development imposes on the parents, demands which will tax all their resources of understanding, ingenuity, energy, and emotional stability for extended periods of time.

The blind child seems to be particularly sensitive to the feeling tones of the people around him even though his behavior often does little to suggest this to the inexperienced observer. This paradox highlights the importance of getting skilled counseling help to the parents as soon as the diagnosis of blindness is established so that they can better understand the youngster's often puzzling "lack of response" or "withdrawal" and learn how to encourage his reaching out to his environment, first to friendly persons, and through them, as he develops, to the world of things.

This reaching out, which is being increasingly recognized as basic in the development of all children, assumes particular importance in the case of the blind child, the very nature of whose handicap imposes a serious barrier to its achievement. All too frequently his development is tragically warped and restricted because of the tendency to assume that limited functioning is the necessary and inevitable result of his physical handicap. Rather the limitations are the response of the child who has been seriously deprived both of emotional satisfactions and appropriate experiences at the successive levels of his development.

EXPECTATIONS AND EXPERIENCE

I have purposely avoided the use of the word "stimulation" throughout this discussion because of the connotation which it so frequently carries of "doing something to" the child rather than providing the kinds of opportunities which will motivate him to activity on his own part with encouragement and freedom to develop a mastery of his environment by the use of all his capacities. The children

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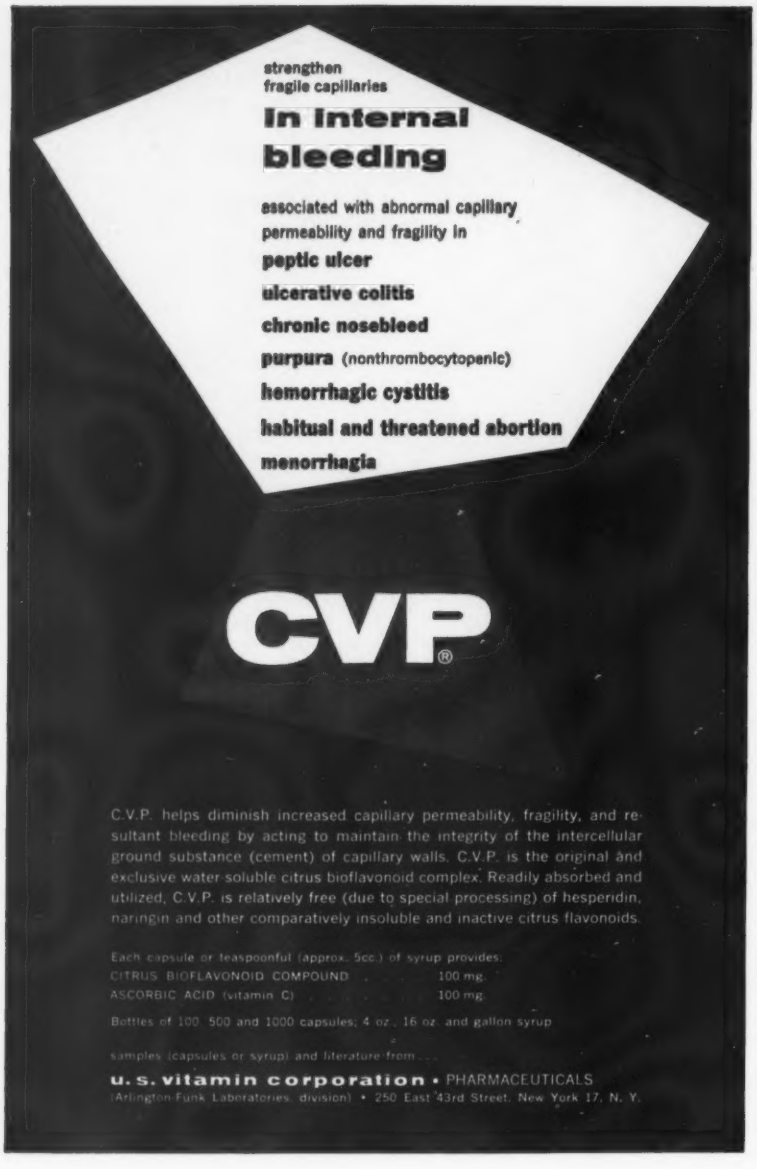
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themselves have taught us much about how they learn and, conversely, how often with the best intentions in the world, we get in the way of their learning. Here the detailed records have been invaluable, and will serve to provide a better basis for determining appropriate expectations.

Even recognizing the disadvantages of the pressure which comes from expecting too much of the child, we have come to feel that expecting too little in the early period is more prevalent and that this may be even more damaging to his development. Failure to observe and recognize the signs of readiness in the child's behavior and to capitalize on them by providing maximum opportunity for learning new skills is to place serious obstacles in the way of his orderly development. The inevitable frustration the child experiences is a major factor in creating emotional problems, often of great severity. This vicious circle is extremely difficult to break, whether the child's pattern is one of withdrawal or of more aggressive behavior, such as extreme tantrums.

The existence of inadequate expectations even among highly qualified professional persons was illustrated recently in a meeting of a parents' group. A prominent pediatrician, speaking on the development of normal children, said that most children begin to walk between 12 and 16 months of age but that an even wider age range for beginning could be called "normal." Unfortunately he added the comment that a blind child, however, could not be expected to walk before 2½ years of age. One can only conclude that he was generalizing from a limited experience. We have found that blind children can fit into the same pattern as sighted children and that some will walk as well under a year. Seriously delayed walking is usually only one result of conditions which are unfavorable for the child's progress.

Because of the poor motor development of many blind children we became particularly interested in trying to understand why some of the 4- and 5-year-olds in the intensively studied group were showing so much freedom and skill in their motor development and such a high degree of ability to get about independently and to orient themselves in new situations. These children were in marked contrast to the children whom we came to speak of as the *blind* blind children who showed little freedom or initiative in any area.

We found that the children with good motor ability and orientation had all had "favorable opportunities" for this type of development, as we have come to define such opportunities through the use of the rating scales, while the others had had serious limitations imposed in at least one important area. One can predict with confidence that the children who were able to get about freely will be adults who will travel independently, while we may have grave questions, so far as our present knowledge goes, as to the others. According to our findings, skill in orientation seems to bear little or no relationship to capacity as measured by the psychological tests or degree of vision.

There has been such consistent evidence of the close relationship between the functioning of the blind child and his total life experience that we have been forced to the conclusion that any sound evaluation of his capacity depends upon an intimate knowledge of these interrelated factors. For example, we have repeatedly observed children whose functioning was below normal at the outset but who have improved in this as the parents have been helped to understand the child and meet his needs more adequately. We have also seen extreme, temporary regressions when disrupting family problems have occurred, such as illness in the family, the loss of the father's job, or the birth of a young child who absorbed the mother's attention for a time. To take the child's functioning at such a time as evidence of his capacity is tragic in the extreme.

Thus we have become convinced that retarded functioning in a blind child with no other major physical handicap should be presumed to be directly related to the complex social and environmental factors in his total experience until proven otherwise by intensive study. However valuable the various test instruments can be in the hands of a skillful clinician, they are useful only if regarded merely as guides for observation and tools in the

study of the child and his family. There is no easy answer to the problem of differential diagnosis and no substitute for careful study by well-qualified staffs of all aspects of the problem—medical, psychological, and social—over an extended period of time if necessary. Unfortunately such diagnostic services are not available in most communities.

In regard to the basic medical question that started us on the research, the evidence strongly supports the theory that the retarded functioning seen so often in children with retrolental fibroplasia is not the result of a true mental defect but is evidence of extreme deprivation of appropriate experience or of emotional disturbance, or both, which has developed because of misunderstanding of the child's basic needs and failure to provide a favorable learning situation for him.

COUNSELING SERVICE

Are there then specialized educational techniques which are needed by the blind child in the preschool period? We do not believe that there are in the usual sense of the word, though the matter is by no means as simple as the statement "the blind child is first of all a child" would seem to imply. Further understanding of the blind child will come, we believe, as the best scientific knowledge of the development of *all* children is brought to bear on the study of the individual blind child, against the backdrop of the accumulating scientific knowledge of the developmental patterns of blind children.

One interesting aspect of the study has been the opportunity to work with leaders in the nursery-school field in placing blind children in regular nursery schools. Here the Nursery Committee of the Welfare Council of Metropolitan Chicago gave leadership, first in a study of the possibilities and then in accepting blind children into their own agencies. Substantial financial support from the Chicago Parents of the Blind and other interested groups has made placement in regular nurseries possible for any child ready for it. Through the combined efforts of the project staff and the preschool counseling service of the State Department of Public Welfare more than a hundred children in the Chicago area have enjoyed this experience.

The success of the plans has been found to depend on the continued availability of skilled counseling help both to the parents and to the nursery schools. We believe that such placement has great advantages for blind and sighted children alike when it is part of a long-range plan based on an understanding both of the needs of the individual blind child and what the particular nursery school has to offer. Nursery school without the necessary allied services both to the family and the school has, in our experience, been of doubtful value.

There is increasing recognition of the imperative need for skilled casework service to parents, from the time of diagnosis through the preschool period, by counselors who have understanding of the problems of blind children. Such services should make use of and coordinate all the varied community resources which may be needed. Particular responsibility for leadership in the development of services, we believe, rests upon the medical and allied professions, not only because of their contact with the family at the crucial time of diagnosis but also because of their position at the "growing edge" in extending knowledge and developing sound practices for prevention and treatment in the whole field of child development and mental health.

Development of adequate services depends, however, not only upon training personnel who can put into practice what is already known but upon the extension of research methods and the continued critical observation and evaluation of experience. There is urgent need for research into the problems of the multiply-handicapped blind child and for the development of services for the poorly functioning and the emotionally disturbed children for whom institutionalization is too often the only provision. The difficulty in finding effective ways for treating these severely—and in many cases unnecessarily—handicapped children is a compelling argument for providing the needed preventive services that will enable the parents to meet the total needs of the child at the successive levels of his development. Here our knowledge is far in advance of the application of it to meet the varied needs of individual blind children and their parents.

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Continued progress against tuberculosis*

The mortality from tuberculosis in the United States, which has been decreasing for many decades, accelerated its rate of decline in recent years. Between 1949 and 1956 the age-adjusted death rate from the disease fell no less than 70 percent—from 25.5 to 7.6 per 100,000 population—compared with a reduction of 35 percent in the preceding seven-year period. Figures available thus far in 1957 indicate that a new low may be established this year.

Both white persons and nonwhites have shared in the accelerated downward trend in mortality from the disease. The recent gains have been particularly marked among white females. Their age-adjusted death rate from tuberculosis was down to 3.6 per 100,000 in 1955, a decrease of more than 70 percent since 1949. For white males the corresponding reduction was about 60 percent. In the nonwhite population, too, females have made more rapid progress than males in the control of tuberculosis. Hence, the mortality from the disease is being increasingly concentrated among males. In 1955 the death rate for males was about twice that for females among nonwhites and not far from three times that for females among white persons. It is also apparent that the rate continues to be much higher in the nonwhite than in the white population.

An accelerated reduction in tuberculosis mortality is manifest at every age period. Between 1949 and 1955 the decrease was nearly 90 percent for the total population at ages 5-24 years, and exceeded 70 percent at the other age groups under 45. But in the prior six-year period, from 1942 to 1948, the maximum reduction—which occurred at ages 5-24 years—was little more than 50 percent.

The major factor in the reduction of tuberculosis mortality has been the decrease in number of active cases of the disease. Also of significance has been the diminishing proportion of young people with primary tuberculosis infection, demonstrated by numerous studies of tuberculin tests of school-age children. The great majority of people in our country now reaching age 20 react negatively to the test.

The improvements in tuberculosis mortality reflects also intensified efforts to detect the disease and newer methods of treating it. Case-finding programs have been greatly expanded, and in 1955 more than 10 percent of the population in our country received chest X rays. Furthermore, the development of various drugs and of new surgical procedures in the treatment of the disease has improved the outlook for patients. Drug therapy has been widely adopted and probably most tuberculous patients currently are treated with one or more of these drugs.

It would be a serious mistake to underestimate the magnitude of the tuberculosis problem which still exists. The number of persons in the United States with active tuberculosis is estimated to be 250,000, or 150 per 100,000 population. Of this total, only about 60 percent are known to public health authorities, which means that there are still about 100,000 unidentified persons with active disease; the latter group constitutes a major reservoir of infection. The potential danger of spreading tuberculosis has been increased by the large number of patients who are being treated at home—a development made possible by changes in the medical care of the disease. However, even now more than half the known patients with active disease receive extended periods of hospital care. In addition to active cases, there are approximately 550,000 people who have inactive tuberculosis, and 1,200,000 more who have had the disease but who do not require public health supervision. Altogether, the total of persons with a past or present history of active tuberculosis is approximately 2,000,000. Moreover, migration from areas outside continental United States and contacts with countries where tuberculosis is still rampant provide continuing reservoirs of infection.

*Reprinted from *Statistical Bulletin*, Metropolitan Life Insurance Company, November 1957.

The campaign against tuberculosis needs to be carried on intensively until the disease is completely stamped out. As the Public Health Service points out, major emphasis in case finding should be placed on those groups of the population where the tuberculosis problem is now largely concentrated: low income groups, migrant workers, people in institutions, and those known to be exposed to the disease. At the same time, the methods used to control the disease need to be modified in the light of the fact that an increasing proportion of active cases are found among people past midlife. Some promising results in preventing the disease have come from the use of antituberculosis drugs, but further research is nevertheless required in this field. The search for still better drugs and better programs of treatment is continuing.

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Hearing and acoustical handicaps*

LeRoy D. Hedgecock, Ph.D.†

The problems attending the failure to hear normally can hardly be understood without some grasp of what normal hearing is like. This understanding must go beyond the physical characteristics of sound and beyond the organic reception of auditory stimuli. It must include an awareness of the psychological and social effects of audition. Apparently it is difficult to establish the concept that hearing may differ not only in degree but also in kind. Every clinician concerned with hearing is familiar with reports that a patient can hear "real well" and yet fails to understand much of what is said to him. Most of us know of persons who literally can hear a pin drop but still have difficulty in oral communication. Such instances, along with observation and study of persons with severe loss of hearing, point to the important fact that deafness brings about a qualitative as well as a quantitative change in the total pattern of sensory perception.[1]

SOUND HEARD BY THE NORMAL EAR

A brief description of how we hear will illustrate some of the possibilities for difficulty in the function of hearing. Although its performance is taken for granted, the normal ear actually is one of Nature's most remarkable creations. Physicists tell us that the normal ear is capable of detecting changes as small as 1-billionth of the atmospheric pressure on the eardrum.[2] For the convenience of avoiding the large numerical differences that would be involved if measurements were made in actual acoustic pressures, the measurement of sound intensity usually is expressed in logarithmic units known as bels and decibels. This system has no fixed quantity, but rather it expresses a ratio of two quantities such as double, triple, tenfold, and so on. On such a scale the intensity range of the normal ear for a 1,000-cycle tone is approximately 120 decibels. On most audiograms the zero-decibel level represents the intensity at which normal ears can just detect a tone. Loss of hearing then is expressed as so many decibels above that intensity.

The range of audible frequencies for normal human ears extends from approximately 20 to 20,000 cycles per second. It may orient our thinking to remember that the pitch of middle C on the musical scale is approximately 250 cycles per second. The range of frequencies that are important for conveying a speech signal is from about 300 to 3,000 cycles per second. The frequencies ordinarily measured by an audiometer are from 125 to 10,000 cycles per second.

The total number of pure tones that most ears can distinguish on the basis of both frequency and intensity is on the order of 340,000.[3] We know, of course, that most of the sounds we hear are not of a single frequency nor at a single intensity. Instead they are combinations of

*Reprinted from *Public Health Reports*, September 1957.

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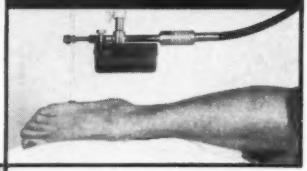

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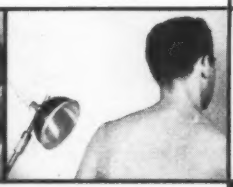

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many frequencies and intensities that change almost continuously. The result is that the normal ear is responsive to a practically infinite variety of sound patterns. This is possible because of the highly specialized and delicate structure of the human ear.

STRUCTURE AND FUNCTIONING OF THE EAR

For purposes of study and description, the ear may be divided into three parts: the outer ear, the middle ear, and the inner ear. The outer ear of man is not very complex. It consists simply of the visible auricle on the side of the head and the external auditory canal that forms an unobstructed passageway of air to the eardrum.

The middle ear is more complex, both structurally and functionally. It serves as a mechanical transducer of sound vibrations from the surrounding air to the fluid of the inner ear. The eardrum (tympanic membrane) separates the outer ear from the middle ear. Attached to this membrane and extending across the space of the middle ear to the wall of the inner ear are three small bones (ossicles) known as the hammer (malleus), anvil (incus), and stirrup (stapes). These tiny bones function as a kind of lever mechanism in transmitting the motion of the eardrum to the inner ear. The airspace of the middle ear is connected with the nasal cavity by the eustachian tube. This opening provides ventilation of the middle ear and permits equalization of air pressure inside and outside the eardrum.

Between the middle and inner portions of the ear are two openings in the bony partition: the oval window and the round window. The footplate of the stirrup fits into the oval window in such a way as to respond with a rocking motion when vibration causes movement of the drum membrane and ossicular chain. The round window is closed by a flexible membrane which permits movement of the fluid in the inner ear when changes in pressure occur at the oval window.

The inner ear is a highly complex and delicate structure embedded deep within the temporal bone. It occupies a space that is shaped like a snail shell and is known as the cochlea. Within the cochlea is an intricate arrangement of cells that make up the organ of hearing. This organ is supplied with nerve endings from the eighth cranial nerve, which carries auditory impulses to the brain. Adjacent to the cochlea and continuous with it are the vestibule and three semi-circular canals. These chambers also have special sensory structures that are supplied by a branch of the eighth nerve. Their function is to provide the sense of equilibrium.

In addition to the specialized structures of the inner ear, the whole labyrinthine chamber is filled with fluid that serves as the medium for conveying vibration or movement to the enclosed sensory organs.

Beyond the stage of cochlear reception hearing becomes a function of nerve and brain activity. For the most part this process defies simple description. However, some of the significant biological functions of hearing can be presented briefly.[4] In its simplest form hearing is unconscious. The hearer reacts to the background of sound in his environment without being aware of most of it. Any sudden change or unusual pattern of sound is likely to raise hearing to the signal or warning level. At still higher levels of function it permits communication by language and appreciation of auditory beauty. Each of these functions is important to the comfort and well-being of the person. Even the unconscious perception of background noises establishes a sense of contact and unity with the environment; lacking it, one is likely to feel isolated and uneasy. At the signal level hearing serves the practical purposes of protecting the person and directing much of his activity. The most important aspects of this function in humans are at the intellectual and social levels, where hearing permits easy acquisition of language and fluent oral communication.

MEDICAL TREATMENT

I will not attempt to review the problems of medical treatment and restoration of hearing in patients whose auditory handicap is temporary. Among children this group is large. It constitutes an area in which programs for the conservation of hearing are highly fruitful. Much of the deafness caused by infections in the middle ear or other obstructions to the transmission of sound can be corrected or alleviated by surgical or other medical

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treatment.[5] With prompt and proper care most children having conductive deafness can be treated successfully. This is true for adults as well as children, but conductive impairments in adults are not so commonly without complications.

A significant cause of conductive deafness in adults is a change in the bony wall of the inner ear known as otosclerosis. Certain patients with this condition are suitable candidates for the fenestration or the mobilization operations. If such treatment is successful, these patients usually regain sufficient hearing to understand speech satisfactorily although the acuity for sound is not likely to be entirely normal.

A significant number of children and the majority of adults with difficulty in hearing have some degree of perceptive deafness. This means that either the inner ear or the auditory nerve fails to respond normally to sound. In most instances this type of deafness cannot be corrected by any type of treatment, and for many of this group, compensation by the use of hearing aids and educational rehabilitation are particularly important.

COMPENSATORY SKILLS

The variations that may occur in auditory impairments are many. However, there are basic principles that apply to deafness in general. The problems of each individual may be expected to vary not only with the type and degree and age at onset of his deafness, but with other physical and mental characteristics and with the environment in which he functions.

Despite some misconceptions about the more subtle problems that are created by deafness, there is general cognizance of the basic nature of the handicap. Most enlightened persons now realize that deafness is primarily a sensory deprivation and an obstacle to communication rather than an intellectual defect as it was once thought to be. Most people know that deafness usually can be compensated for to a successful degree by the development and utilization of other senses and skills. They know that most deaf persons can and do take responsible and productive places in society. It is doubtful, however, whether many people are aware of all the means by which this compensation is achieved. Probably few understand the pervasive psychological and social significance of deafness. The very fact that the communicative handicap looms so large tends to obscure other aspects of the problem.

In the normal person, hearing and vision work together in a supplementary relationship to orient him to both his immediate and his distant environment. Vision is directed primarily to the foreground, while hearing is non-directional, encompassing the background as well as the foreground. Vision is limited by darkness and by obstructions and is essentially nonfunctional during sleep. Hearing functions keenly in the dark, around corners, through most doors and walls, and even to a substantial degree during sleep. If this comparative analysis of the two major senses were to be continued into every detail of our lives, we would understand why Helen Keller has said that she regrets the lack of hearing more than she does the lack of sight.

In the absence of hearing, vision must carry most of the burden of perceiving things at a distance, although the tactile sense may be employed for this to some extent. For example, most deaf persons are able to feel the vibrations produced by an airplane overhead or a clap of thunder or the stamp of a foot on the floor. From time to time speculations have arisen as to whether the deaf as a group possess keener visual acuity and sharper powers of observation than do those with normal hearing. Although this supposition has not been demonstrated conclusively, it has a sound underlying premise. It acknowledges that the security of the individual is threatened by the sensory defect and the individual thus threatened is challenged to mobilize his remaining resources more effectively. He develops compensatory skills in order to meet the demands of his environment.

In addition to visual and tactile impressions, the deaf person may develop an acute awareness of kinesthetic sensations. This helps him to feel and interpret his own movements more effectively and becomes an important gauge for controlling the production of speech. Individuals differ in the extent to which the kinesthetic sense develops naturally, and no method is certain to produce efficient kinesthetic control of speech muscles. However, if a patient is properly encouraged to attempt speech and to pay close

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*Jackson, A. S.: Journal-Lancet 76:45 (Feb.) 1956.

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attention to the visual and tactile clues, he can usually establish some muscular feeling for speech.[6]

Persons who lose their hearing after speech has developed usually retain much of their articulatory skill, but over a period the quality of their voices is likely to change considerably. Their speech usually remains intelligible to most listeners, although it may lack proper intonation and rhythm. Early attention to visual, tactile, and kinesthetic sensations should do much toward maintaining adequate speech after loss of hearing.

The speech of persons with partial deafness may be expected to vary with the type, degree, and conditions of onset of deafness. The partially deaf person most commonly hears the vowel sounds and most of the rhythm patterns while missing many of the consonants and much of the inflection of the voice. Frequently this results in articulatory difficulty and some degree of monotony in vocal quality. Partially deaf persons are likely to be unaware of their speech disorders because they reproduce speech as they hear it. The first step in treatment for this group is to determine whether amplification will improve the auditory signals that are desired. The majority of those with moderate to severe deafness can learn to use a hearing aid to some advantage. Occasionally the use of a hearing aid is the only requirement for adequate rehabilitation of a partially deaf person; more often it is necessary or at least desirable to provide training in auditory, visual, tactile, and kinesthetic perception.

USE OF THE HEARING AID

It is impractical to lay down a rigid set of standards for the determination of benefit from a hearing aid. Most of the values are relative. That which is significant to one person may be unimportant to another. Even two individuals whose audiograms are identical may not benefit equally from amplification. One may distinguish sounds well enough to derive considerable help in understanding the speech of others, while another may benefit primarily by the increased sensation of his own voice. No person with perceptive deafness should expect complete compensation. A hearing aid does not improve the ability to hear; rather it may improve the signal to be heard. Despite this fact and despite all the limitations and problems imposed by hearing aids, they have been a tremendous boon to millions of people with partial deafness. Certain general principles and guideposts may be used in helping to determine who should wear a hearing aid.

It is appropriate to consider a hearing aid for most persons with a permanent loss of hearing in the better ear of between 35 and 95 decibels for speech frequencies. The greatest degree of benefit and satisfaction from amplification is likely to be experienced by those with hearing losses for speech of from 35 to 75 decibels. Most persons in this group can learn to use a hearing aid well enough to permit satisfactory communication under favorable circumstances. The majority of them can develop and maintain intelligible speech. With a combination of personal initiative, proper training, and use of a hearing aid, the handicap produced by moderate degrees of deafness can be reduced to a minimum. In most instances it need not interfere with pursuit of normal vocational and social activities.

It is not uncommon to find individuals with losses of from 75 to 95 decibels who cannot tolerate enough amplification to do any important good. This is the usual circumstance for those with losses greater than 95 decibels in the speech frequencies. Nevertheless, if any hearing for speech remains, it is advisable to try a hearing aid and to provide training in the use of residual hearing. As a general rule, those who have heard enough to acquire normal speech and language before their loss of hearing will derive greater benefit from amplification than those who have never been accustomed to interpreting sound patterns. Also, those whose audiograms are relatively flat may expect better results than those with markedly falling curves or other highly irregular patterns of auditory threshold.

The physical inconvenience of hearing aids has always been a factor in discouraging people from using them. This, combined with false pride and the substantial expense of the instruments, has deterred their acceptance to a considerable extent. The fact that a moderate impairment of hearing is not readily apparent seems to promote the tendency to hide it, or even to deny its existence. This obstacle and that of inconvenience have been re-

duced greatly in recent years by the development of small, highly efficient, inconspicuous instruments. It is obvious that consumers have paid for this development by numerous and expensive purchases of hearing aids. It is no secret that many users of hearing aids have bought 2 or 3 or even more instruments before they learned to use one effectively. The justification for the usual price of a hearing aid is that the agent is supposed to provide extensive service to those who find it difficult to learn to use the instrument. Part of the adjustment of a person who wears a hearing aid includes an understanding of the operation and maintenance of the instrument.[7]

AUDITORY TRAINING

Auditory training and practice in listening can play an important part in the adjustment to a hearing aid. Many new sounds are introduced by the use of an instrument, and virtually all sounds are changed in quality. It is difficult for many persons to become accustomed to these changes. Although they receive more sound than they did without amplification, it may have little value until they learn to interpret it. This learning may be facilitated by instruction and systematic practice. In a complete program of auditory training, opportunity is provided to progress from relatively easy distinctions between sounds that are grossly different to finer and more complex discrimination. The stimulation may range from the booming of a drum or blaring of a siren to the rustle of leaves or the production of a voiceless consonant. When it is attainable, the emphasis in discrimination is placed on interpretation of speech. Listening for pleasure is encouraged by using rhythm and music for auditory stimulation.

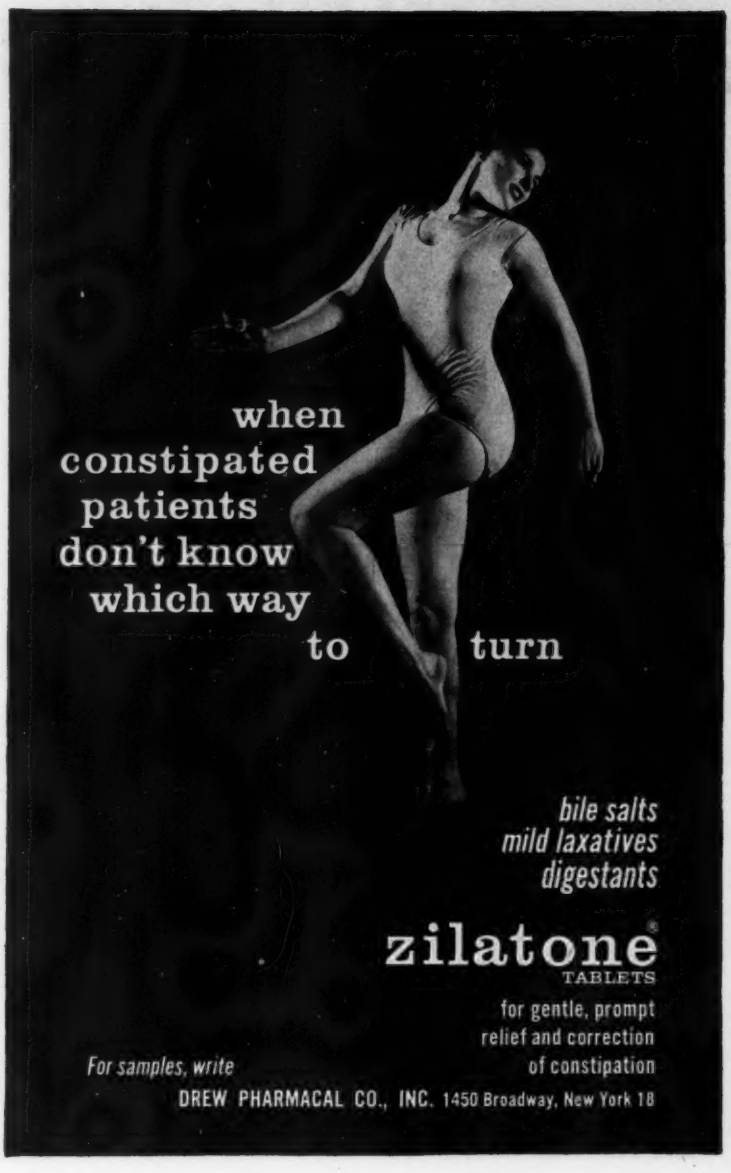
Both the starting points and end results of auditory training vary widely for different individuals. Some may never achieve more than gross discrimination, while others can learn to distinguish words effectively. Although the degree and type of deafness and the effectiveness of auditory training usually are related, no fixed rule can be applied to determine the exact value of such training. It must be assumed that all persons with some residual hearing have the potentiality for utlizing it to advantage. An extensive program in auditory training is recommended particularly for children who have never heard well enough to acquire normal speech and language and for all those who experience unusual difficulty in adjusting to a hearing aid. Hopkins and Hudgins[8] have suggested that even though it is not possible to predict from the audiogram how much a child will profit from auditory training, all acoustically handicapped children seem to derive some benefit from it and should have every opportunity to continue training throughout their school lives.

SCHOOLS FOR CHILDREN

Children with deafness of less than 60 decibels for speech usually can adjust and make satisfactory progress in the regular classroom if they have learned to wear a hearing aid and are given a moderate amount of special help in the development of communicative skills. Those with losses of between 60 and 75 decibels are likely to need a substantial amount of special help, but many can participate profitably in the program of the regular school. If proper instruction is available and if adequate adjustments are made, it is desirable to keep these children in the regular classrooms. When circumstances are not favorable for a partially deaf child in the regular classroom, or if he fails to adjust to this environment, it may be necessary to provide a special class or special school environment. For children whose deafness for speech is greater than 75 decibels, it usually is best to provide a special school that is large enough for appropriate grouping and is staffed by teachers who are highly trained for teaching the deaf.[9] Those whose losses of hearing for speech are greater than 75 decibels usually have considerable difficulty in learning; the results are limited even after a period of training and adjustment.

SPEECH READING

When hearing is absent or nearly so, the principal means of compensation is visual perception. Regardless of the degree or kind of deafness, lip reading—or more properly, speech reading—can play a vital role in the process of rehabilitation. For countless numbers of persons



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with mild impairments of hearing, the practice of speech reading permits adequate adjustment for normal activities. For those who are severely deaf it is the chief means of understanding the speech of others. For those with moderate degrees of deafness it complements the auditory function in a remarkable way. Fortunately, the elements of speech that are weakest in acoustic power, and therefore are heard poorly, have distinctive positions or movements that are readily visible.

All persons who see adequately can read speech to some extent. Every gesture and expression that a speaker exhibits gives the listener certain information. As gestures of the hands and body can come to have meaning, so can motions of the lips, tongue, and face. Interpretation of these motions is, of course, the skill known as speech reading. It must be borne in mind that by no means all the positions and movements of the speech structures are visible to the observer. He sees only partial patterns and those only fleetingly. There are several pairs of consonant elements in which positions and movements are visibly the same. This causes many words and phrases to appear identical. Often the speech reader must rely on context and a sense of appropriateness to determine what has been said. Differences in the way people speak also contribute to the problems of the speech reader. People who talk with little movement of the lips with cigarettes and pipes in their mouths are difficult to understand. Extremely rapid or unusually slow speech is hard to interpret. Unique skill and artistry is required for becoming highly proficient in speech reading. On the other hand, nearly everyone can do it to some degree; but often the main task in teaching speech reading to adults is to convince them that it is within their power to grasp it.

The ability to read speech varies just as other abilities do. In some it develops naturally, even without special training. Others require laborious teaching, and still others never become proficient. It seems to depend more on an inherent knack or aptitude than on general intellifence or diligent study.[20-22] The person who can seize partial clues instantaneously and synthesize them into meaningful patterns is likely to be adept at reading speech.

It is difficult, if not impossible, to assess or predict the degree of accomplishment that will result from instruction in speech reading. Nevertheless, it is appropriate to provide well-planned programs of instruction and practice for all those with a significant impairment of hearing. Practically all educational programs for acoustically handicapped children should and do include training in speech reading. Many programs of instruction for adults as well as children are made available by the chapters of the American Hearing Society and by other agencies such as university clinics for speech and hearing therapy and community evening classes. There is need for expansion of these services, but an ever greater need is for the acoustically handicapped themselves to learn of the benefits that can be gained by a determined effort to overcome their handicap.

COMMENT

Important as oral communication is, it is not the only means of communication and it is not a prerequisite for acceptable behavior or competent performance of many tasks. The deaf or hard of hearing person should be encouraged and guided in the development of appropriate compensations that will provide a sense of security and satisfaction. Frequently, this may be done most effectively by emphasizing activities and abilities that are not directly dependent on hearing. The deaf person who excels in his work or play, whatever it be, will find that the communicative problem is lessened. Actions do indeed speak more strongly, if not louder, than words. An accurately drawn blueprint, or a finely tailored garment, or a beautifully prepared meal will speak eloquently for itself. The producer need not give nor listen to an oration on its merits.

Auditory impairment of any degree need not interfere with acceptable behavior and development of a child nor with useful and happy adjustment of an adult. Acceptance of this premise should not be interpreted to mean that deafness is no handicap. On the contrary, it must be recognized that any significant degree of deafness imposes a serious deprivation.

Only by acknowledgment and careful assessment of the handicap can proper adjustments and appropriate compensations be made.

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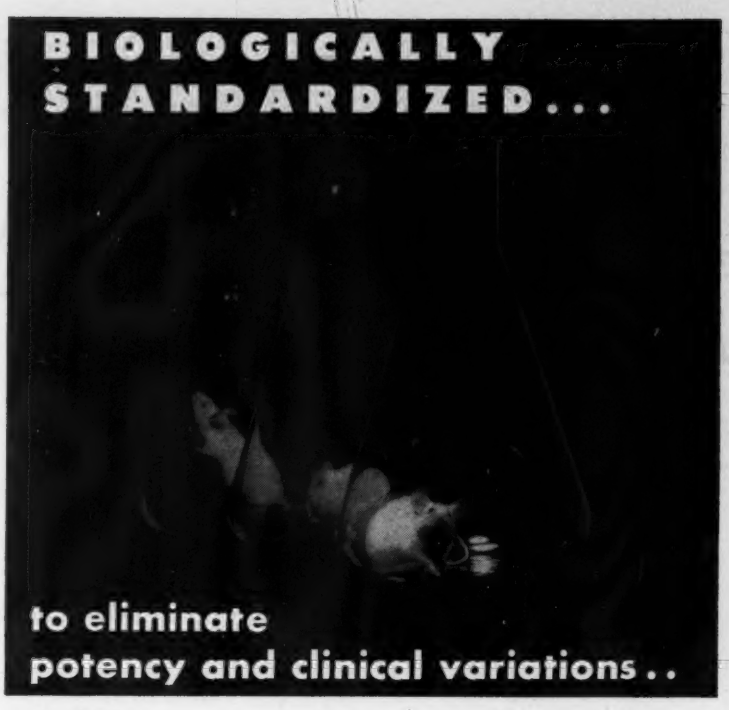

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Histoplasmosis*

Chester W. Emmons, Ph.D.†

Just 51 years ago at Ancon Hospital in the Canal Zone, Dr. Samuel T. Darling, in one of his studies observed and first described histoplasmosis.[1] This mycosis, perhaps more than any other, has drawn the attention of the medical world to the importance of fungus infections of man. The discovery was actually a byproduct of a search for another disease. The frequent occurrence of splenomegaly and the known occurrence of cutaneous leishmaniasis in Latin America had suggested to observers that visceral leishmaniasis also might occur in that area. Darling was searching for kalaazar when, on December 7, 1905, examining smears from lungs, spleen, and bone marrow he observed enormous numbers of oval cells 1-4μ in size, situated free or in alveolar epithelial cells. Influenced no doubt by the objectives of his search, he believed the intracellular organisms were flagellate protozoa and he proposed for them the name, *Histoplasma "capsulata,"* the spelling of which he corrected in a later paper.

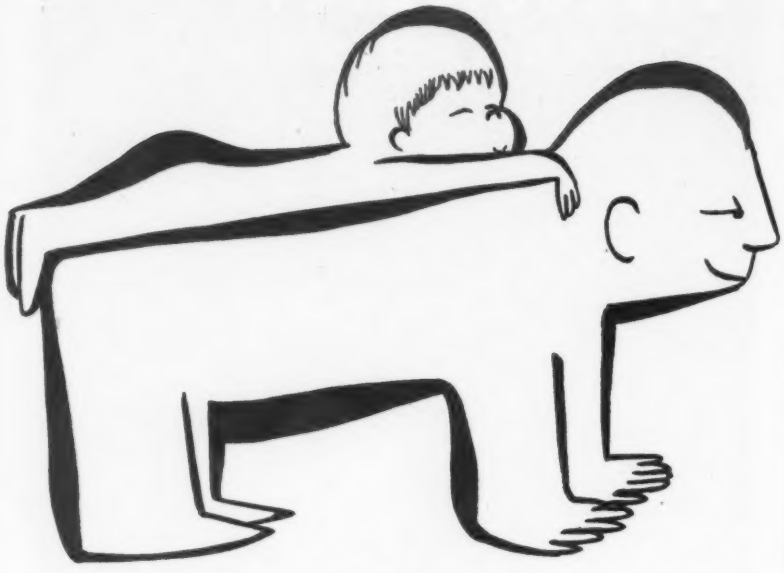
*Reprinted from *Public Health Reports*, November 1957.

†Dr. Emmons, of the Laboratory of Infectious Diseases, National Institute of Allergy and Infectious Diseases, Public Health Service, Bethesda, Md., gave a talk on which this paper is based before the Second Inter-American Medical Convention, April 3, 1957. The convention was sponsored by the Medical Association of the Isthmian Canal Zone and met at the University of Panama.

DARLING'S THREE CASES

The patient was a Martinique Negro admitted to the hospital only 2 days before with a disease which resembled miliary pulmonary tuberculosis. Two other cases came to Darling's attention within the space of 2½ years, and in a second paper[2] he repeated almost verbatim his description of the first case and recorded in equally discriminating clinical and pathological detail cases 2 and 3. The second patient, like the first, was a Martinique Negro recently arrived in the isthmus and the third was a Chinese, a native of Canton, who had been in the isthmus for 15 years. Darling found only these 3 cases among 33,000 hospital admissions and concluded that the disease was very infrequent in occurrence. He unsuccessfully sought the etiological agent in surface ground waters and in a wide variety of native animals and insects.

In a third paper published in 1909[3] he again reported the three cases in detail and described histoplasmosis as a fatal infectious disease characterized by splenomegaly, emaciation, irregular pyrexia, leukopenia, and anemia with invasion of endothelial cells in the smaller lymph and blood vessels by enormous numbers



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of micro-organisms. He described necrosis of the liver, splenomegaly, pseudogranulomata of the lungs and intestines with ulcerations of the latter, and with necrosis of lymph nodes draining injected viscera. Although his concept of the disease included certain errors of interpretation and, being based upon a study of three fatal cases, did not encompass the full gamut of manifestations and degrees of severity recognized today, he drew a surprisingly accurate picture of fatal histoplasmosis.

Darling was convinced by this time that the disease no longer existed in Panama, and he concluded his third paper in almost the same phraseology used in his second with the prophetic statement, "The mode of infection and the portal of entry are unknown; these together with the zoological status of the micro-organism may yet be ascertained by physicians living in less salubrious regions of tropical America than Panama and in those not yet disturbed by the sanitarian."

TWENTY YEARS LATER

Histoplasmosis did indeed seem to have disappeared from Panama. It was next reported 20 years later and 3,000 miles away in Minnesota,[4] but under what degree of neglect on the part of the sanitarian we are not told. It reappeared also in the tropics in 1926 with the fifth report of a fatal case in a Honduran laborer on a banana plantation.[5] Although the next report actually from the isthmus was that of a canine case reported by Tomlinson and Grocott in 1945,[6] it is now apparent that histoplasmosis is of frequent occurrence in Panama and undoubtedly there has been no interruption in its occurrence as a common but inapparent disease in this area. The evidence from skin tests[7,8] and soil isolations[9] in Panama supports this concept.

Actually, the fourth human case of fatal histoplasmosis to be recognized in Panama was reported by Draheim, Mitchell, and Elton[10] in 1951, 45 years after Darling's original observations. Recent evidence of human benign infection in Panama comes also from Puckett's very important studies of coin lesions (histoplasmomas) and healed granulomas in which, by special staining, he was able to demonstrate *Histoplasma*.[11] Nine of the men in his series of 22 had lived 2 years or more in Panama. In an expanded series reported by Forsee, Puckett, and Hagman,[12] 13 of 30 patients with such lesions had lived in Panama from 2 to 5 years, and there was acceptable evidence that the lesions developed during residence in Panama in 4 of these men.

The 45-year interval between Darling's and Draheim's cases does not reflect a complete disappearance of *Histoplasma* from Panama during that time. Tomlinson and Grocott's canine case reported in 1945 has already been mentioned. An accidental but very important discovery by Zimmerman of a human case of benign histoplasmosis helps to fill in a segment of the history. Reexamination with special stains of a solitary pulmonary lesion in a 4-year-old Panamanian child dying in 1931 with another disease revealed *Histoplasma* in the necrotic center of the healed granuloma.[13] It may be anticipated that further studies of similar material will yield evidence of additional unrecognized cases of benign histoplasmosis spanning this period when histoplasmosis was overlooked in the country where it was first observed and described.

I am well aware that to this point my historical review of histoplasmosis is familiar, that many severe cases of histoplasmosis have been recognized during the past 2 years in Panama, and that current interest in the mycosis has revealed many as yet unpublished facts about its frequency and importance there.

STATUS TODAY

Today histoplasmosis is known in some 22 countries of the world,[14,15] including highly sanitized as well as primitive areas. Histoplasmosis is not exclusively a disease of the tropics or of the United States, where it has been most intensively studied, nor is it a disease of unhygienic geographic areas in the usual connotation of that phrase. Neither is it a protozoan disease, nor a usually fatal disease as Darling supposed, but these are details in the delineation of the mycosis which detract little from the accuracy of its first description and not at all from the genius of the describer.

There have been many steps in the development of our current knowledge of histoplasmosis, but before I review some of these in chronological order, I want to mention another recent significant contribution from Panama. One of the diag-

nostic problems that benign histoplasmosis has presented is a nonspecific and often minimal host reaction and a paucity of fungus cells in minimal lesions. A histopathological diagnosis, consequently, has often been missed, particularly in old healed lesions where the fungus, presumably, is dead. A number of selective stains have been proposed and used with eminent success, but most of these stain old or dead cells poorly. The most useful stain for the demonstration of *Histoplasma* in old, quiescent and healed lesions is the modification of Gomori's methenamine-silver-nitrate technique as applied in the laboratories of Gorgas Hospital (formerly Ancon Hospital) and reported by Grocott.[18] This modification, as he modestly states, does not supplant such stains as the periodic acid-Schiff and the Gridley stains, but it makes cells of *Histoplasma* and other fungi so conspicuous in the section of an old necrotic or partially calcified lesion that their demonstration no longer presents a serious problem.

Discoveries and developments leading to present concepts of histoplasmosis have been reviewed in many papers. Da Rocha-Lima's opinion,[17] accepted by Darling according to Meleny,[18] that *Histoplasma* was a fungus was fully verified in 1934 when Tompkins at Vanderbilt University made the first antemortem diagnosis of histoplasmosis by examination of a blood smear.[19] DeMonbreun isolated in culture and described in great detail the growth of the fungus under varying environmental conditions.[20] Hansmann and Schencken[21] isolated the fungus in the same year, but, because of certain clinical features observed in their patient, they did not immediately reach the diagnosis of histoplasmosis.

Year by year additional cases were reported until in 1945 Parsons and Zarafonetis[22] reviewed 71 cases, in only 4 of which the patient had survived to the time of report.

In the meantime an increasing mass of evidence indicated that, in certain geographic areas at least, a pulmonary disease generally assumed to be healed tuberculosis must have some other etiology.[23-25] Smith,[26] speaking from his experience with benign pulmonary coccidioidomycosis, suggested this might be a hitherto unrecognized form of histoplasmosis. Christie and Peterson[27,28] observed an association between histoplasmin sensitivity and the presence of calcified pulmonary lesions in tuberculin negative individuals. Palmer, knowing of these observations, used histoplasmin prepared some time before in the Mycology Unit of the National Institutes of Health[29] in his well-known study of tuberculin and histoplasmin sensitivity in student nurses and found remarkable geographic differences in rates of histoplasmin sensitivity.[30-32]

Furcolow and associates[23-25] described the pulmonary lesions and traced the correlation between their development and the acquisition of skin sensitivity to histoplasmin. The nonspecificity of histoplasmin was known before it was used in any mass testing,[29] and histoplasmin and yeast-phase *Histoplasma* antigens as used today have nonspecific components which limit their usefulness as diagnostic agents in both intradermal and serologic tests.[36-40] Nevertheless, both uses have resulted in tremendous strides in our knowledge of the frequency of histoplasmosis.

These studies have revealed that histoplasmosis is usually benign, varying in severity from a clinically inapparent respiratory infection manifested only by the acquisition of skin sensitivity to a more severe pulmonary disease with cavitation. Pulmonary calcification is a frequent, but not an invariable, sequela of these mild and moderately severe cases. It is only in the exceptional case that histoplasmosis becomes disseminated and may terminate fatally.

More detailed reviews of the development of our knowledge of histoplasmosis and more extensive bibliographies are given in recent review papers.[41-43] These papers review also the clinical variations of histoplasmosis, including manifestations not observed by Darling, such as involvement of the central nervous system, adrenal damage, and endocarditis. It is not my intention to dwell further upon the clinical aspects of histoplasmosis since these have been so fully and repeatedly covered in many case reports and review papers.

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confirmation of a clinical impression or diagnosis is indeed essential in this mycosis. Within limits, diagnostic antigens are useful in attempts to reach a diagnosis. These limitations are perhaps greater than in most bacterial diseases. Dermal sensitivity to histoplasmin persists for many years, and the rate of histoplasmin sensitivity within an endemic area may be so high that a skin reaction has little diagnostic value unless a recent conversion to sensitivity can be shown. Correlation of rising complement fixation or precipitin titers with an illness has greater diagnostic value than the skin test, but reactions to both histoplasmin and yeast-phase antigens must be interpreted with caution since it is well recognized that several of the pathogenic fungi have one or more antigens in common. Cross reactions with blastomycosis, coccidioidomycosis, or other mycoses may occur in some patients so that it is necessary in a sero-diagnosis to obtain paired or multiple serums and to test these against a battery of fungus antigens. Campbell has very ably investigated the problems of the serologic diagnosis of histoplasmosis and has discussed techniques and the correct interpretation of results.[36-38]

A more conclusive diagnostic procedure is the isolation of *Histoplasma* in culture and this should always be attempted. Sputum, blood, bone marrow, at least in infants, skin lesions, ulcer base, and lymph nodes, or pulmonary lesions obtained by surgical excision, should be spread upon agar slants and incubated at 23°-30° C. Many culture media have been used and their relative efficiency compared, but freshly prepared glucose-neopeptone agar (modified Sabouraud's) is convenient and adequate. When contaminated material such as sputum is used for inoculum, the agar should be made unsuitable for bacterial growth by the addition of 0.5 micrograms each of penicillin and streptomycin per milliliter of agar.

The mouse is highly susceptible to histoplasmosis[44,45] and may be used for diagnosis by the intraperitoneal injection of sputum. Mice require protection against bacteria in the sputum inoculum, and this usually can be achieved by mixing penicillin and streptomycin with the sputum before injection or by subsequent treatment of the mice. More detailed information about diagnostic procedures is available in many papers.

EPIDEMIOLOGICAL FACTORS

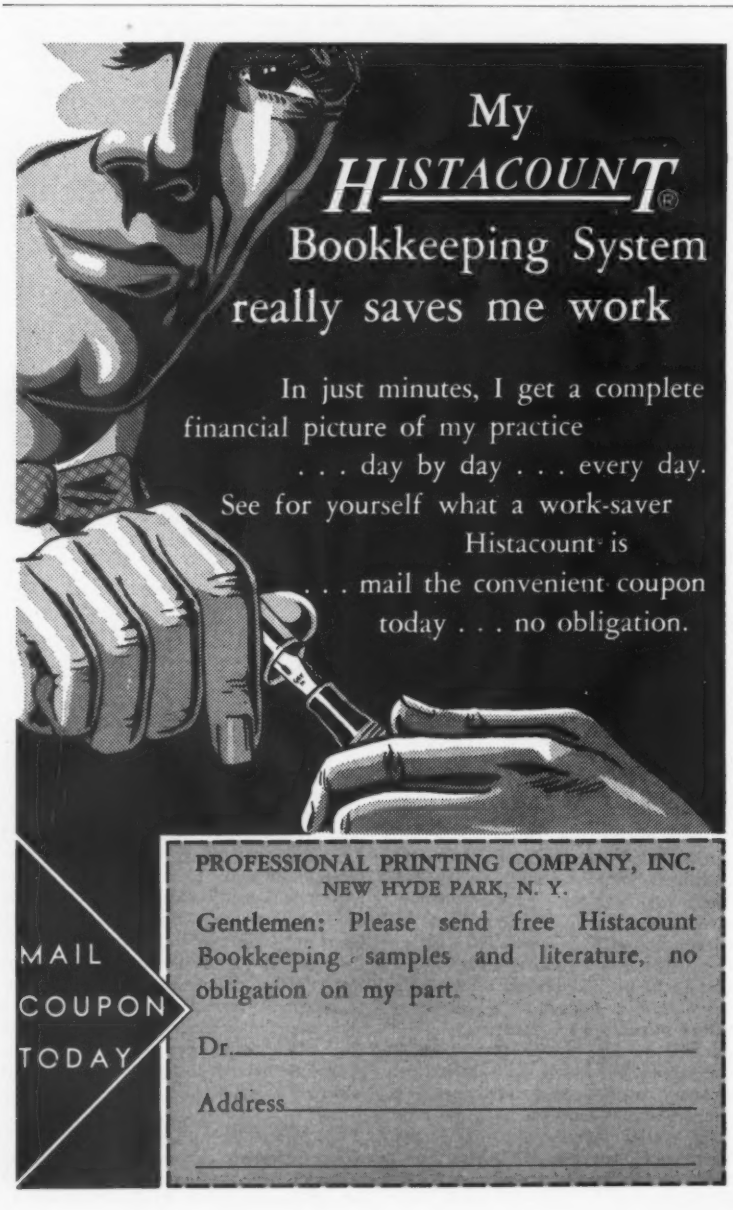
Histoplasmosis shares with the other deep mycoses an apparent inability to spread from person to person. The parasitic or tissue phase of the dimorphic fungus is infectious experimentally, but it is not an effective agent in transmission of the disease, and contagion of histoplasmosis has not been observed. On the contrary, the patient, according to best evidence available, invariably acquires his infection from an environmental site where *Histoplasma* is growing as a saprophyte.

The infectious particles are the conidia or spores which are produced freely under suitable conditions. They are much more resistant to deleterious influences than the fragile yeast cells of the parasitic growth phase and are inhaled by the patient during the performance of activities which release these spores as airborne dust. This concept rests upon the evidence of many case histories, the demonstration that *Histoplasma* can be grown in the laboratory upon sterilized soil, the isolation of *Histoplasma* in culture from soil in nature, and the actual demonstration of the distinctive macroconidia of *Histoplasma* in soil naturally colonized by the fungus.[46,47]

Since all available evidence had suggested the importance of an environmental source of infection, the Mycology Laboratory of the National Institutes of Health began a systematic search for saprophytic sources of *Histoplasma* in 1946.

Histoplasma was first isolated from soil and reported in 1949 after some 350 specimens had been unsuccessfully examined. Macroconidia were observed in the first positive specimens.[48] The first positive specimens were two samples of red clay taken from a mound of earth at the entrance to a rat burrow located under the edge of a chickenhouse where infected rats had previously been trapped.

This discovery was made while we were somewhat preoccupied with the possible importance of an animal reservoir and the fact that this, as well as many subsequent isolations of *Histoplasma* were from chickenhouses on farm premises where rats with histoplasmosis had been trapped, obscured at first the more important of the two associations. Zeid-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berg and coworkers[48] were first to point out the association between the saprophytic growth of *Histoplasma* in soil and the presence of chickens. Since this predilection of *Histoplasma* for enriched soil in or near chickenhouses has been recognized, it is now almost routine, within an endemic area, to isolate *Histoplasma* from such sites and often from a high percentage of samples. Many cases of histoplasmosis in man have been related to exposure to dust, incident to the cleaning of old or neglected chickenhouses. However, such an exposure has not been recognized in many other cases, and *Histoplasma* has been isolated from environments with no apparent relationship to chickens.

It should be recognized further that the frequent occurrence of *Histoplasma* in, under, or near chickenhouses is not dependent upon a host-parasite relationship to the chicken. No naturally infected chickens have been observed, and histoplasmosis cannot be produced experimentally in the chicken although the fungus can be isolated from tissues for a short time after intravenous inoculation. On the contrary this appears to be an entirely saprophytic relationship to enriched soil contaminated by chicken droppings and to other similarly suitable soils with high organic content.

Whether the apparent immunity of the chicken to histoplasmosis is simply a matter of the bird's high body temperature remains to be proved. Mammals, on the other hand, show a wide range of species susceptibility. DeMonbreun[49] observed histoplasmosis in the dog, and this animal still represents the only economically important host of histoplasmosis recognized in veterinary medicine.[50] However, other animals are susceptible. We have isolated *Histoplasma* in culture from 9 other species: the cat, brown rat, roof rat, mouse, fox, opossum, striped skunk, spotted skunk, and marmot.[51] Others have found the fungus in the horse and cow.[52,53] The histoplasmin skin test has been used widely in veterinary medicine.[54]

Histoplasmosis, as observed in these animals, has been for the most part a very mild and probably a self-limited disease. We have observed the progressive and fatal form only in the dog although isolation of the fungus from spleen and liver provided evidence of dissemination in many of the cats, rats, skunks, and other animals examined. Our evidence does not show conclusively whether histoplasmosis is a frequent cause of death in wild animals. In the case of dogs and cats, we have conclusive evidence that histoplasmosis usually is benign and that it is an infrequent cause of death. Because of a rabies control program conducted in a rural county in northern Virginia, we were able to get directly from their owners several hundred healthy dogs and cats. Using the most productive method of examination we could devise, the intraperitoneal injection of mice with homogenized hilar and mediastinal lymph nodes, we isolated *Histoplasma* by mouse passage from 50 percent of a series of cats and dogs.[55,56]

Since, in a study extending over a period of several years, we have found relatively few dogs with fatal histoplasmosis, we are forced to the conclusion that most of these healthy animals would have survived their primary infection, in most cases without clinical evidence of disease. We were not able to find a correlation between naturally acquired mild histoplasmosis in the dog, as proved by isolation of *Histoplasma* from lymph nodes, and either dermal or serologic evidence of infection.[56] This lack of correlation could have been due to inadequacy of the antigens, to the mild and apparently self-limited nature of the disease, or to the varying and unknown duration of the disease in these naturally infected animals. It should be emphasized that, although histoplasmosis occurred in half of the dogs and cats in this particular endemic area, there is no evidence to support the concept that these animals are responsible for the endemicity of the mycosis. On the contrary, as pointed out above, the fungus, *Histoplasma capsulatum* is a part of the saprophytic soil microflora, and it is undoubtedly from this environmental source that both man and animals are infected.

ANTIBIOTIC THERAPY

There is as yet little to report on the chemotherapy of histoplasmosis. Ascosin and mycostatin[57,58] can be shown to protect experimentally infected mice against histoplasmosis, but toxicity or inability

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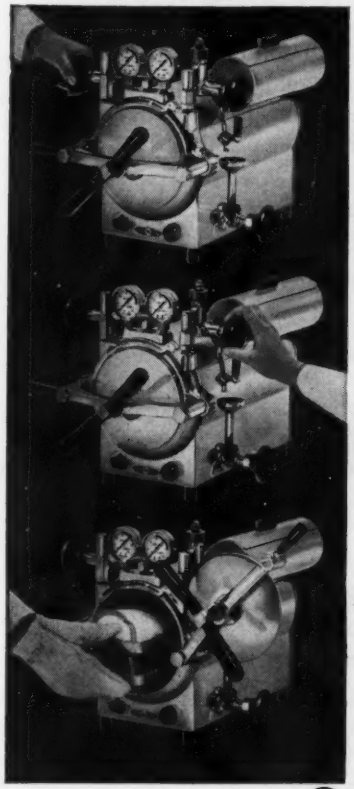

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to attain effective blood levels, or both, have limited the clinical usefulness of these antibiotics. A new antibiotic which shows considerable promise is Amphotericin B.[29] In experimentally infected mice, Amphotericin B will not only protect mice from death but will clear the tissues of fungi as indicated by negative cultures when the experiment is terminated. Clinical experience with this antibiotic is still limited.

The number of publications on histoplasmosis now appearing annually is many times greater than all the medical literature on all the deep mycoses published during the 3 years while Darling was searching for what he believed to be a new type of leishmaniasis. Many of the questions concerning the etiology and epidemiology of histoplasmosis left unanswered by Darling have now been answered, but we still seek information about its geographic endemicity, its clinical variability, and, especially, its safe and effective treatment. It is appropriate that during recent years attention has again turned to the part of tropical America which, in a sense, was the cradle of histoplasmosis. The concerted attack upon histoplasmosis now anticipated here will surely be productive.

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Mortality from snakebites, United States, 1950-54*

Henry M. Parrish, M.D., M.P.H.†

Poisonous snakebites in the United States are by no means rare. However, few studies indicate the incidence of poisonous snakebites in a given region or State, and no studies give the actual death rate in this country resulting from poisonous snakebites alone.

The estimate by Githens, quoted by Porges[1] and others, of 2,000 to 3,000 snakebite accidents a year in the United States is based on such sources as news clippings and is possibly far too low.

Swaroop and Grab[2] pointed out the importance of snake venom poisoning throughout the world. They estimated that 30,000 to 40,000 deaths occur annually from this cause. The same authors estimated that there are from 10 to 20 deaths from snakebites in this country each year.

One of the major difficulties in a study of snakebite deaths is that the International Statistical Classification of Diseases, Injuries, and Causes of Death classifies snakebites under E927 with "accidents caused by bites and stings of venomous animals and insects." Included

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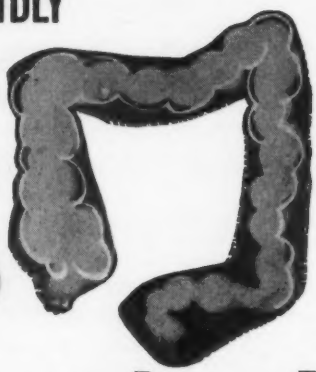

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in this classification are the bites or stings of centipedes, scorpions, bees, wasps, snakes, and other venomous animals. The purpose of this study is to determine the death rate from poisonous snakebites in the various States, to discover what kinds of snakes cause most of the fatal bites, and to study other pertinent medical facts related to these deaths.

Two families of poisonous snakes inhabit the United States: the Crotalidae, or pit vipers, and the Elapidae, or coral snakes. Of the pit vipers, the genera found in this country are the *Crotalus,* or rattlesnakes, the *Agkistrodon,* or moccasins (including the water, or cottonmouth, moccasin, and the copperhead, or highland, moccasin), and the *Sistrurus,* or ground rattlers. At least one species of poisonous snake has been reported to inhabit each State in this country.

DEATH REPORTS

A list of the deaths, 71 in all, resulting from the bites of poisonous snakes in the United States during the 5-year period 1950-54 was obtained from the National Office of Vital Statistics, Public Health Service. This list contained the number of the death certificate, the date of death, and the State in which death occurred. A copy of each death certificate was then obtained from the appropriate State health department. Since the death certificates did not record all the information considered important for this study, I mailed a followup letter with a questionnaire to each physician, coroner, or other official who signed the death certificate. Of the 71 mailed, 53 questionnaires were returned. This report is based on the analysis of the 71 certificates listing poisonous snakebite as the cause of death and the 53 questionnaires.

Projections from this small sample are of doubtful value, but they are offered for want of a better base. They indicate an average of approximately 14 deaths per year and an average death rate of 0.09 per 1,000,000 population for the entire country.

The number of fatal bites and the death rates for the individual States reveals a definite trend. The death rates, reported at deaths per 1,000,000 population, were highest in the following States: Arizona, 1.15; Florida, 0.65; Georgia, 0.63; Texas, 0.44; and Alabama, 0.32.

Of the 71 victims of poisonous snakebites, 53 were male and 18 female. The high proportion of deaths among males probably reflects their increased exposure owing to recreational habits and to occupations out of doors.

As shown in the following tabulation of deaths according to age, 39 percent of the deaths occurred in youngsters less than 15 years old. A study of the incidence of poisonous snakebites in Florida found that 49 percent of all the bites were experienced by children or youths less than 20 years of age.[3] The large number of deaths in this age group is consistent with the observation that the ratio of units of venom injected to units of body weight is greater in children. Evidently, susceptibility to snake venom

poisoning is greater in both extremes of life, for approximately 32 percent of the deaths were in persons 50 years old or more.

Age (years)	*Number of deaths*
0-4	16
5-9	7
10-14	5
15-19	3
20-29	3
30-39	7
40-49	7
50-59	15
60-69	4
70 and over	4

The occupational groups suffering most fatalities from snakebite were the following: agricultural workers, 25; other out-of-doors workers, including woodsmen, common laborers, and highway workers, 15; preschool children, 16; school children, 11; and housewives, 7. Closely related to the victim's occupation was his activity at the time of the fatal bite. Although the activity was not stated in 21 instances, of the other 50, 15 persons were bitten while working on a farm, 9 were bitten while engaged in other out-of-doors work, 16 children were bitten while playing near their place of residence, 8 persons were bitten while handling or trying to kill a snake, and only 2 were bitten while engaged in recreation. Of the 8 persons bitten while handling a poisonous snake, 5 were engaged in religious ceremonies in Kentucky and Alabama. The Kentucky State Board of Health reported 7 snakebite deaths resulting from religious snake handling between 1940 and 1955. Several of these victims refused treatment until it was too late.

The months during which fatal snakebites were most frequent were: June, 6; July, 10; August, 14; and September, 11. There was a gradual increase in the number of deaths beginning in March and reaching a peak during August and September. This seasonal distribution has been observed in other surveys of snakebites.[2-5]

Crotalus species cause most of the fatal snakebites in the United States: Rattlesnakes accounted for 55 of the 71 deaths in this study. Cottonmouth moccasins were responsible for 2 deaths, and a coral snake caused 1. Two other deaths were attributed to unknown species of pit vipers. The offending reptile was not identified in the remaining 11 deaths. The large rattlesnake species and the cottonmouth moccasins more frequently produce cases of severe envenomation than do copperhead moccasins and ground rattlesnakes. Coral snakes, though quite poisonous, are not as aggressive as the pit vipers, and they have a much more limited geographic range.

SITE OF BITE

Snakes most frequently bite the extremities. In this study, 37 (52 percent) of the patients were bitten on the lower extremities, and 26 (37 percent) were

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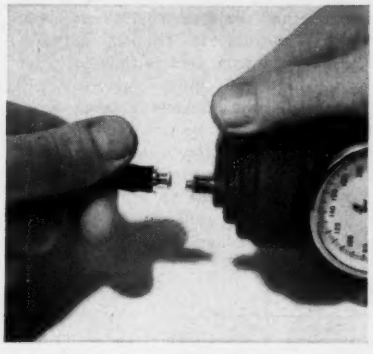

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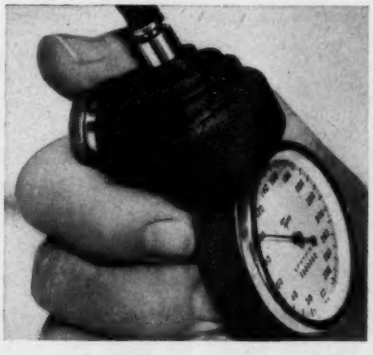

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bitten on the upper extremities. One patient was bitten on the face, and another was bitten on the thorax. For six patients, information about the site of the bite could not be obtained. Three patients suffered from two or more bites from the same snake. Physicians attending three other patients reported that the venom was injected directly into the blood stream through veins in the legs. This intravenous injection of the venom, rather than the usual lymphatic and subcutaneous spread, probably produced death despite heroic treatment. Four other patients were bitten on the proximal portion of an extremity, which allowed for more rapid dissemination of the venom into the body. The other fatal snakebite wounds did not differ from the majority of wounds reported in nonfatal snakebites.[3,4]

The interval between the time of the snakebite and the time of death is given below. Contrary to popular expectation, few patients died within the first hours following a bite. Thirty-five (49 percent) of the patients expired from 6 to 18 hours after becoming envenomated. In this period, the venom is absorbed into the body and exerts its maximum toxic effects. Of the patients who died 3 or more days following the bite, 3 died either from infection or gangrene, or both, and 1 died from a transfusion reaction.

Time Interval	*Number of deaths*
0-1 hours	3
2-5 hours	10
6-11 hours	19
12-18 hours	16
19-24 hours	6
25-48 hours	9
3 days	2
6 days	2
7 days	1
10 days	1
Unknown	2

Attending physicians were asked to check a list of remedies and measures used for treatment. In most instances, the treatment conformed to current recommended practices. It included the use of a tourniquet with incision and suction,[6] and administration of antibiotics, tetanus antitoxin, and antivenom.[7]

A factor which certainly cost many lives was the long interval between the time the patient was bitten and the time treatment was begun. The interval before treatment was less than 1 hour for 14 patients; from 1 to 4 hours for 19 patients; from 5 to 7 hours for 9 patients; from 8 to 10 hours for 3 patients; from 11 to 17 hours for 4 patients; from 18 to 24 hours for 2 patients; and more than 24 hours for 2 patients. Thus, approximately 36 percent of these 53 patients were seen 4 or more hours after the bite. Information concerning the timelag before treatment was not available for 18 patients.

In my experience and from analyzing 241 nonfatal snakebites in Florida, approximately 65 percent of the patients were seen within 2 hours after the bite, and approximately 95 percent were seen within 4 hours. The lag before treatment in the fatal bites gives the venom ample time for absorption into the body and reduces the effectiveness of a tourniquet, incision, and suction. Failure to seek prompt medical attention is attributed to ignorance or religious bias. Many others, especially children, were vulnerable because they lacked boots, long trousers, or other protective clothing. The most important measure to prevent death from snakebite is prompt and vigorous treatment of the wound.

SUMMARY

An analysis of 71 deaths from poisonous snakebites in the United States during the period 1950-54 found the highest death rates in Arizona, Florida, Georgia, Texas, and Alabama.

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The most frequent victims were under 15 or over 50 years of age. Most of the victims were workingmen occupied out of doors or children playing around their residence. Rattlesnake species inflicted at least 77 percent of the fatalities, 90 percent of those for which the species was identified.

The bites of the wounds were predominantly on the extremities: 52 percent on the lower and 37 percent on the upper.

The most important factor in the failure of these patients to survive was the interval between the time of the bite and the time of medical treatment. Other important factors were the large number of rattlesnake bites, the age and weight of the victims, and the nature and location of the wounds.

Early and vigorous treatment of all severe cases of snake venom poisoning is recommended.

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Books received

Books received for review during the period from December 5 to January 5, are listed below. Reviews will be published as space permits.

PRE-EMPLOYMENT DISABILITY EVALUATION. Detailed Policies Regarding Applicants Applying for Employment with Special Reference to Various Disabilities. By William A. Kellogg, M.D., F.A.C.S., Formerly Associated with the Medical Department, Douglas Aircraft Co., Inc., Long Beach, California Division; Clinical Professor of Surgery, New York Polyclinic Post-Graduate Medical School: Assistant Attending Surgeon, Bellevue, Broad Street, Gouverneur, and Polyclinic Hospitals, New York. Cloth. Pp. 155. Price $10.50. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1957.

BRAIN TUMORS. Their Biology and Pathology. By K. J. Zülch, M.D., Professor of Neurology, University of Cologne, and Head, Department of General Neurology, Max Planck Institute for Brain Research. Cloth. Pp. 308, with illustrations. Price $9.50. Springer Publishing Company, 44 E. 23rd St., New York 10, 1957.

THE RELATION OF PSYCHIATRY TO PHARMACOLOGY. By Abraham Wikler, M.D., National Institute of Mental Health, Addiction Research Center, Department of Health, Education, and Welfare, Public Health Service Hospital, Lexington, Kentucky. Paper. Pp. 322. Price $4.00. Published for the American Society for Pharmacology and Experimental Therapeutics by The Williams and Wilkins Company, Mount Royal and Guilford Avenues, Baltimore 2, 1957.

UNEXPECTED REACTIONS TO MODERN THERAPEUTICS. Antibiotics. By Leo Schindel, M.D. Cloth. Pp. 146. Price $3.00. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1957.

GUIDE TO CAREER INFORMATION. A Bibliography of Recent Occupational Literature. By Career Information Service, New York Life Insurance Company. Foreword by Devereux C. Josephs, Chairman of the Board, New York Life Insurance Company. Cloth. Pp. 203. Price $3.00. Harper & Brothers, 51 E. 33rd St., New York 16, 1957.

FUNDAMENTALS OF ELECTROCARDIOGRAPHY AND VECTORCARDIOGRAPHY. By Lawrence E. Lamb, M.D., Director of Cardiology and Chief, Department of Internal Medicine, Air University, School of Aviation Medicine, USAF, Randolph Air Force Base, Texas; Consultant in Cardiology, 3700th USAF Hospital, Lackland Air Force Base, San Antonio, Texas. Cloth. Pp. 142, with illustrations. Price $9.50. Charles C Thomas, Publisher, 301-327 E. Lawrence Ave., Springfield, Ill., 1957.

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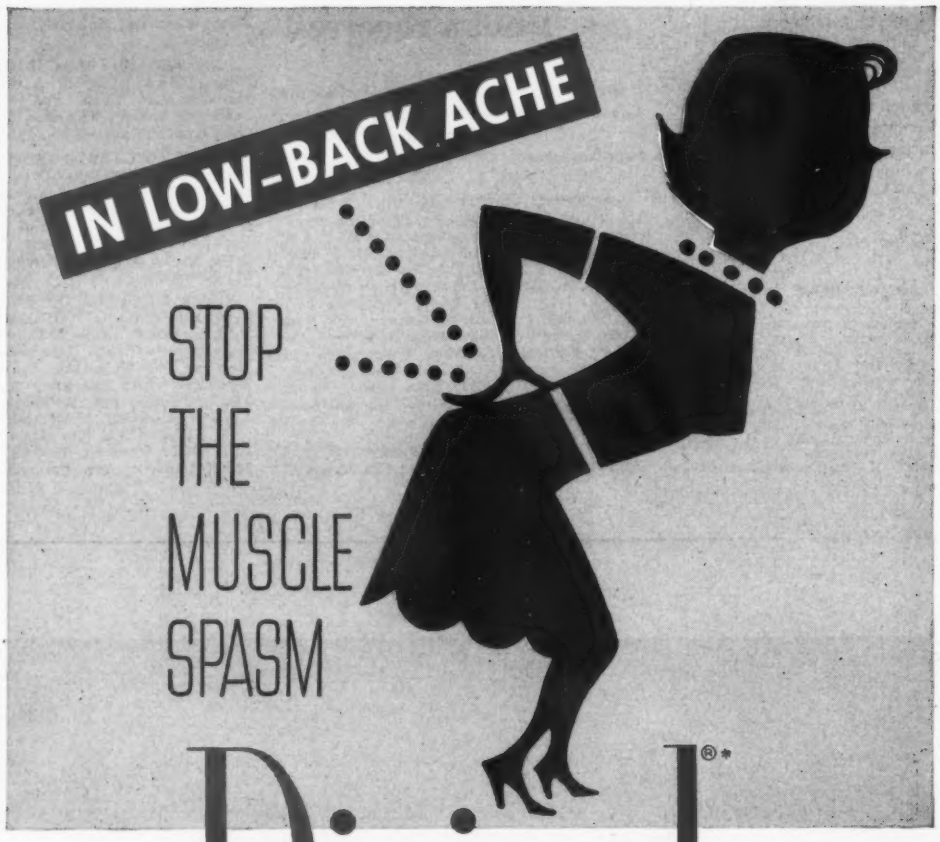

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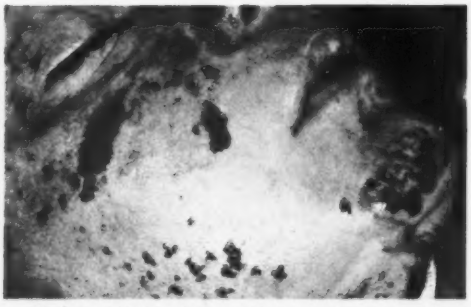

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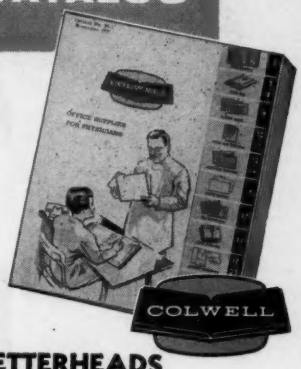

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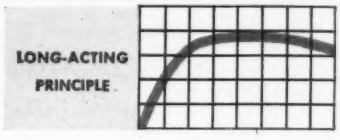

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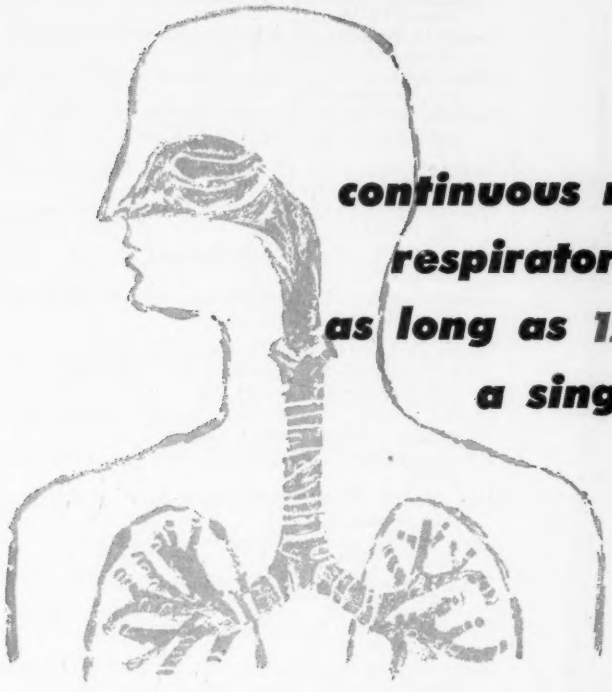

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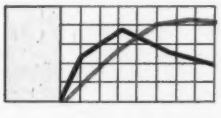
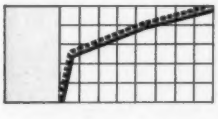


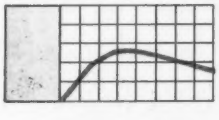
PROMPT RELIEF

Novahistine LP Tablets start releasing medication almost as rapidly as a solution.



CONTINUOUS RELEASE

Novahistine LP releases its decongestive drugs at a constant rate in both acid and alkaline media . . . assuring patients continuous relief whether the tablet is in the stomach or intestine.



SAFE RELIEF

With Novahistine LP there is no sudden "over-release" . . . no uneven, sporadic effects.

And easy to use, oral dosage eliminates patient misuse of nose drops, sprays and inhalants . . . is not likely to produce rebound congestion, mucosal damage and ciliary paralysis, nor make the patient "jittery."

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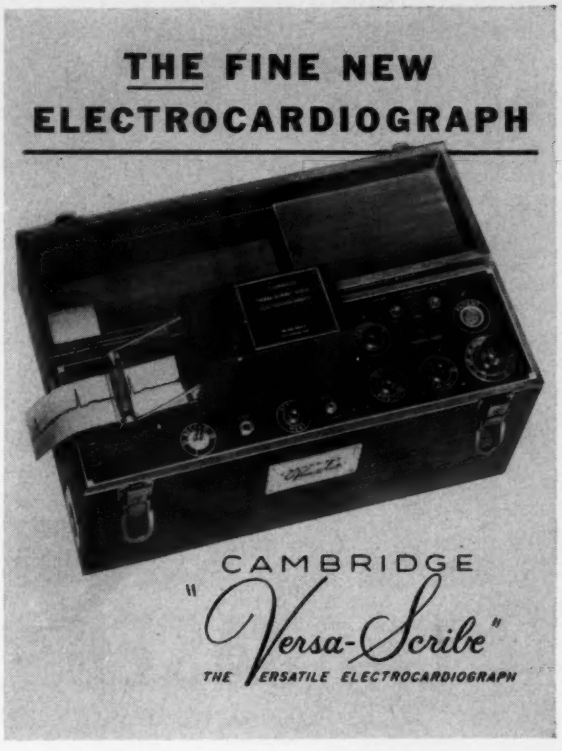

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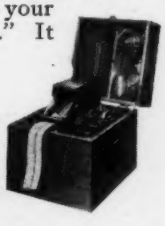

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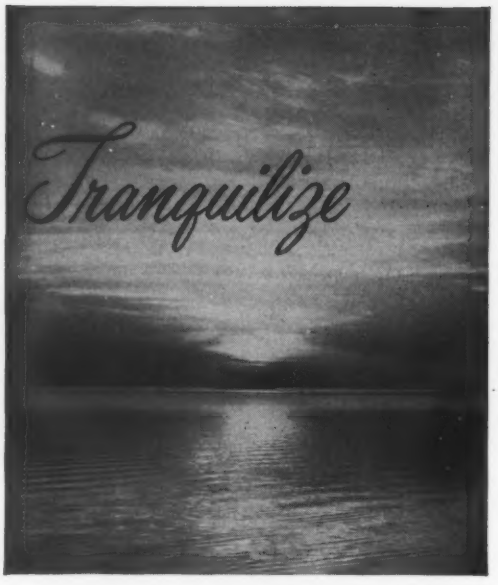

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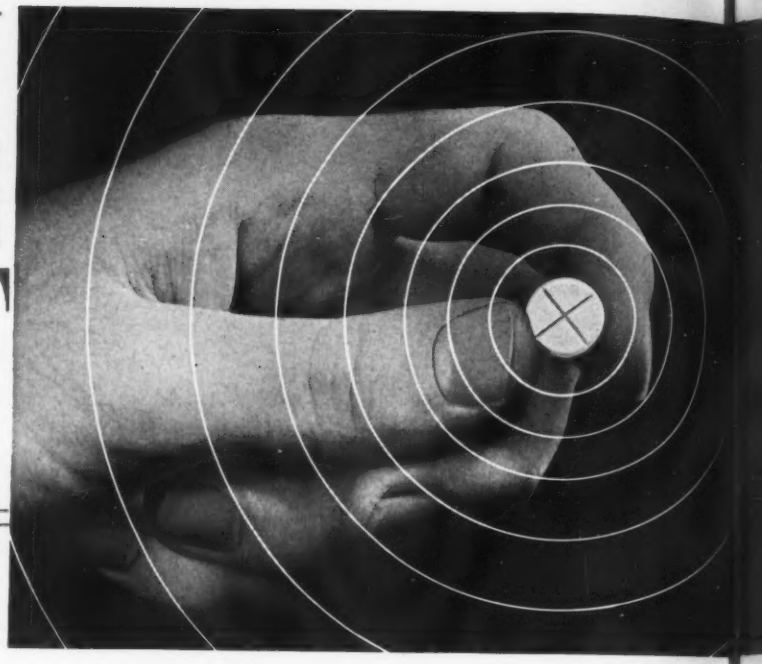

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[1] Nichols, R. L. and Finland, M.: J. Clin. Med. 49:410, 1957.

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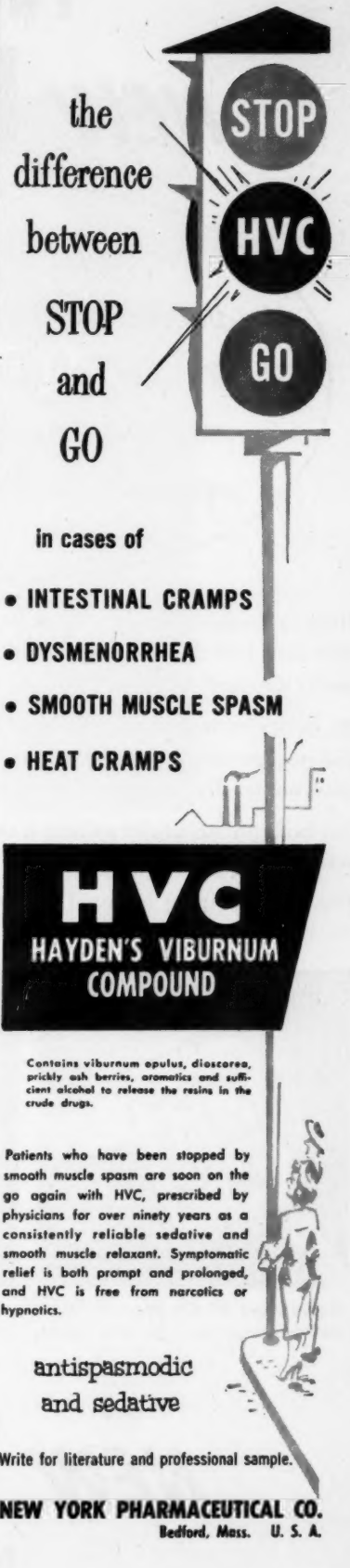
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Conveniently packaged in 4-qt. or 12-qt. sizes, foil wrapped, with handy pouring spout.

High in protein, low in cost, and—when reconstituted—with only half the calories of whole milk, new PET *Instant* meets the needs of the physician in many special-diet cases.

Its exclusive instantizing (mixes faster than you can stir) and its superior flavor make it more acceptable to the patient than nonfat dry milk has ever been before.

For both physician and patient, it can mean a more successful diet, more effective results, more pleasantly accomplished.

Pet Milk Company is proud to introduce new PET *Instant* to the medical profession.

Guaranteed 36.5% protein—high-quality milk protein—by total weight.

Instantized by an exclusive process, PET *Instant* dissolves at the touch of water.

Appetizing flavor. Never powdery or watery—always deliciously fresh tasting.

NEW PET INSTANT

NONFAT DRY MILK

Copr., 1958, Pet Milk Co.

NOTHING IS QUICKER • NOTHING IS MORE EFFECTIVE

Medihaler-EPI®

For quick relief of bronchospasm of any origin. More rapid than injected epinephrine in acute allergic attacks.

Epinephrine bitartrate, 7.0 mg. per cc., suspended in inert, nontoxic aerosol vehicle. Contains no alcohol. Each measured dose 0.15 mg. actual epinephrine.

Medihaler-ISO®

Unsurpassed for rapid relief of symptoms of asthma and emphysema.

Isoproterenol sulfate, 2.0 mg. per cc., suspended in inert, nontoxic aerosol vehicle. Contains no alcohol. Each measured dose 0.06 mg. actual isoproterenol.

Prescribe Medihaler medication with Oral Adapter on first prescription. Refills available without Oral Adapter.

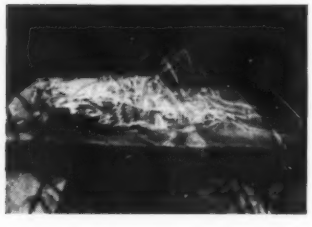
Medihaler-Phen®

Automatic NASAL aerosol nebulization provides prompt, effective, prolonged, and nonirritating decongestion in head colds, allergic rhinitis, sinusitis, and nasopharyngitis. Vasoconstrictive, decongestive, anti-inflammatory, antibacterial. Combines actions of phenylephrine, phenylpropanolamine, neomycin, and hydrocortisone.

FOR KIDDIES TOO
Notably safe and effective for children.
Nonbreakable, spillproof.

Riker
LOS ANGELES

sleep for the sleepless*



*The stroboscopic photo shows movements of restless sleeper (28-year-old male) after placebo. The following night the same patient was given nonbarbiturate Doriden 0.5 Gm. at bedtime. The result was an approximate 50 per cent reduction in overt motion and restlessness. Doriden® (glutethimide CIBA) acts within 15 to 30 minutes; induces 4 to 8 hours of sound, natural sleep; rarely causes morning hangover. **C I B A** Summit, N. J.